

# PUBLIC HEALTH REPORTS

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## TYPHOID FEVER IN CLEVELAND, OHIO, FOR THE YEARS 1918, 1919, AND 1920.<sup>1</sup>

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### Introduction.

Beginning with 1911 and up to 1917, seven annual reports on the prevalence of typhoid fever in Cleveland, Ohio, by members of the third year class in hygiene at Western Reserve Medical School, were published in the *Cleveland Medical Journal*; and the present article is intended to bring the records up to date. During the war period, the general dislocation of men and consequent interference with satisfactory routine resulted in more or less unsatisfactory records. The attempt has been to follow back as many cases as possible for their epidemiological data, but with only partial success. The records for 1920, as received from the division of health, are much more satisfactory than those of the previous years, and suffer mainly in that there has been incomplete reporting of cases by doctors and hospitals. In this year, however, it has been possible to get hold of many of these unreported cases and analyze them, so that the records for 1920 are the best we have had.

<sup>1</sup> From the Department of Hygiene and Bacteriology, Western Reserve University School of Medicine, and the Bureau of Laboratories, Cleveland Division of Health.

It will therefore be evident that the figures in this article will not agree with official figures from the division of health, in that many unreported cases have been added and cases of obvious out-of-town origin have been omitted in the final tabulation. The inadequacy of the records for 1918-19 makes it probable that there was a more extensive out of town series than noted; but, of course, where information was not definite, the responsibility was placed on the city.

An interesting feature of any discussion of typhoid or other epidemiology in a city like Cleveland, with large independent suburbs divided from the city proper by an imaginary line, is that, on the one hand, there are cases which may be infected in the city but live in the suburbs and are consequently reported to the State and not to the municipality, and that, on the other hand, there are cases which live within the city limits, but pass so much of their time at work in the suburbs that it is hard to place responsibility. At the present time (1921) the writer is attempting to overcome some of this difficulty through cooperation with the State health department, both through its central epidemiological bureau and the health commissioner of Cuyahoga County, in which Cleveland is situated. In this way it is hoped that next year a report may be made out for Greater Cleveland to include the area supplied by the city water and drained by the city sewage system.

*Sources of information.*—The records of the doctors of the health division, of the water department, of the various hospitals, and of the Weather Bureau have been freely used, and recognition of their value is here expressed. Where the records were insufficient, personal investigation has supplemented them to some degree, especially in connection with out of town cases, and much assistance has been received from the doctors who cared for the cases. The writer desires to express his thanks for preliminary work in the collection of data for 1918 and 1919 by Dr. Emerson Megrail, instructor in the department of hygiene.

*Division of the year.*—The division of the year into fly-breeding period and nonfly-breeding period, which was adopted in the earlier reports, has been retained, the fly-breeding period including the months of July to November. While at this latitude, and in a city, the fly as an etiological factor in typhoid fever is of minimal importance, the fact that much of the outlying district of the city is, in part, unsewered and, consequently, has many privies, makes such a division valuable.

#### Incidence and Mortality.

*Analysis by months and years.*—Tables I and II show the incidence of typhoid fever from 1910 to 1920, inclusive. The important years

in the series are 1911, as in September of that year the dosage of the city water with hypochlorite was begun, and 1918, as in April of that year the greater part of the city began to receive filtered water. In every case the totals show, in addition to the official figures, such unreported cases as could be uncovered; but it is clear from the apparent mortality, as determined from the relation of deaths to cases, that many more have never reached us. In each year since 1913 a subtraction of the out-of-town cases has been made, and the calculation has been altered accordingly.

TABLE I.—*Annual incidence of typhoid fever in Cleveland, by months, 1910-1920, inclusive.*

Month.	Year.										
	1910	1911	1912	1913	1914	1915	1916	1917	1918	1919	1920
January.....	24	32	24	13	20	7	10	23	7	2	3
February.....	16	23	7	20	29	9	16	12	5	4	3
March.....	38	49	20	20	13	25	11	15	6	3	5
April.....	102	57	22	49	7	10	15	18	7	1	5
May.....	25	27	23	39	10	21	17	11	3	2	9
June.....	18	40	17	20	16	19	11	18	5	11	5
July.....	22	24	31	33	34	15	20	15	28	10	17
August.....	95	80	41	59	36	52	38	36	33	9	19
September.....	123	167	58	83	43	39	51	32	21	10	14
October.....	104	62	62	39	25	27	27	31	17	16	18
November.....	48	38	27	32	20	20	17	9	3	11	8
December.....	41	18	19	28	17	6	12	10	8	5	10
Total.....	656	1,622	351	435	270	250	245	230	143	84	162
Imported.....					33	71	64	83	22	24	44
Cleveland cases.....					237	179	181	147	121	60	118
Rate (crude) per 100,000.....	111	106	31	68	41	36	34	31	19	10.1	20.0
Corrected rate.....					36	26	25	20	16	7.6	14.5

<sup>1</sup> Including unreported cases.

TABLE II.—*Annual mortality from typhoid fever in Cleveland, 1910-1920, inclusive.*

	Year.										
	1910	1911	1912	1913	1914	1915	1916	1917	1918	1919	1920
Total.....	105	85	38	84	54	54	36	53	37	20	25
Out of town cases.....		7	2	5	6	9	4	13	2	3	6
Cleveland cases.....		78	36	79	48	45	32	40	35	17	19
Rate (crude) per 100,000.....	18.6	14.0	6.2	13.2	8.2	7.9	5.1	7.2	5.0	2.7	3.1
Corrected rate.....		13.3	5.8	12.4	7.3	7.1	4.5	5.4	4.7	2.2	2.3

Analysis of cases according to age and sex distribution shows nothing new and is of value only as additional statistical information. For this reason, three years (1918, 1919, and 1920) have been combined in the data presented in Table III.

TABLE III.—*Incidence of typhoid fever in Cleveland, by age groups and sex, for the years 1918, 1919, and 1920 combined.*

Age (years).	Sex.		Total.	Age (years).	Sex.		Total.
	Male.	Female.			Male.	Female.	
1.....		1	1	30-34.....	31	9	40
2.....	2	4	6	35-39.....	25	13	38
3.....		2	2	40-44.....	18	4	22
4.....	2	6	8	45-49.....	7	3	10
5-9.....	28	22	50	50-54.....	1	4	5
10-14.....	28	23	51	55-59.....	2	2	4
15-19.....	38	15	53	60 and over.....	1	.....	1
20-24.....	36	18	54	Total.....	243	136	1,379
25-29.....	24	10	34				

<sup>1</sup> Age not obtainable in 20 cases.

#### Out of Town Cases.

As usual, there are some cases which had their origin outside of Cleveland and can not be attributed to local conditions. There are a great variety of ways in which these cases may be dealt with. The present series is arranged in the following manner:

A. Persons arriving in the city after onset, or arriving less than two weeks before onset, are considered as out-of-town cases.

B. Persons whose occupation keeps them out of the city for the greater part of the time, such as traveling salesmen, firemen and conductors on trains, sailors on the lakes, etc., and who give a history of eating and drinking at many places, without special precautions, are also so considered.

C. Cases originating where local epidemics, in connection with picnics or other assemblages, are clearly established, with the necessary etiological relations, also admit of exclusion.

D. In cases where the responsibility appears to be more or less divided, or where the period elapsing between arrival and onset of illness is at the border line of the incubation period, it is safer to include them among the city list, even at the risk of unfairness.

In this connection an interesting technical point has arisen. A luncheon was given at a country club outside the city limits, and was attended by some 200 persons. The catering was done by a Cleveland firm, most of the personnel of the firm being residents of Cleveland. About two weeks afterwards there was an outbreak of typhoid among the guests, about 40 of whom were infected. Investigation in the city laboratory, under direction of the writer, showed the presence of a carrier among the caterer's personnel. Although the majority of those taken sick were residents of the suburbs and did not come into the Cleveland figures, yet there were several Cleveland people, and it is of interest to decide their classification. Had the carrier not been determined, they would have been out of town

cases, as being infected outside of the city area; but inasmuch as the carrier was a Cleveland resident, only accidentally outside of the city, it was Cleveland that was clearly responsible, not only for the cases reported to the health division but for the remainder which were reported to the State. For the sake of uniformity the Cleveland cases have been placed in the out of town series, as there were only three of them; but there is no doubt where the responsibility lies. This outbreak is reported elsewhere in greater detail, as it is not included in the Cleveland series.

As a general rule, the majority of out of town cases come in the summer or vacation periods, and the deletion of all these from the graphs lowers the curve for those months nearer to the norm of the other months. It is our hope that when the water element is entirely gone, removal of these cases will leave so nearly a flat curve that carrier cases may be much more readily found.

In 1918, out a total of 143 cases reported, there were 22 out of town, or 15.4 per cent. Of these, 19 occurred in July and August, lowering the curves for those months very materially.

In 1919, out of a total of 84 cases, there were 24 out of town, or 28.6 per cent, a rather unusual figure, but evidently due to the small number of town cases with about the same annual figure of out of town cases.

In 1920, out of 162 cases, there were 44 out of town, or 27 per cent, indicating that if the records had been as good in the previous years the number assigned to Cleveland might have been somewhat smaller.

#### **Etiology.**

The usual etiological factors include food and beverages, together with water supplies, flies, and contacts, and in the present instance most of these may be more or less briefly dismissed.

#### **FLIES.**

The distribution of the cases throughout the city during the months in which fly breeding is going on actively does not show any especial relation to the districts in which the sewer system is incomplete and in which flies might be supposed to gain access to feces. For the most part in the built-up districts, where the deep water-worn gullies make a sewerage system impracticable until more filling has been carried out, the privies are in the form of vaults and are not readily accessible. In the outlying districts, where the city has more the character of the country, there are too many of the old type of privies, and a few cases of typhoid fever which may possibly have a fly etiology; but in all of these cases other factors are also present, and the total number is too small for conclusions. Through all the series for the last 10 years this has been true. In fact, as the sanitary con-

ditions improve and more and more districts are connected with the sewerage system, the number of cases even possibly related to flies approaches zero.

#### CONTACTS.

Although, of course, many of the persons in whom no definite etiology was established, obtained the infection through contact, there are few cases in which there is any evidence. The following brief notes summarize the available information:

1918: Two boys were taken sick on July 18 and 26, respectively, and cared for by their mother. Her case was reported to the bureau on September 7.

A boy was taken sick July 27, and cared for at home. On August 20, two cases in children in the same family, both under 9 years of age, were reported.

A fatal case, with onset on September 14, was cared for in the same lodging house as was a subsequent case in a boy of 9, with onset on October 8.

1919: A boy taken sick August 26 was the older brother of a subsequent case in the same house, with onset on September 9.

1920: There is one suggestive series in which it was difficult to make a final determination. A girl of 13 was at a fresh-air camp near Cleveland for two weeks and was taken sick a few days after her return home. Investigation showed that part of the water supply at the camp was polluted, but that at the time of the girl's visit there was no case of typhoid there. There had been a case in one of the workers, who had developed typhoid so soon after arrival that it is probable that she obtained the infection in Cleveland before departure, but she had been taken away to a hospital some two weeks before the arrival of the girl. The incubation time, however, would appear to indicate that the girl received her infection at the camp. The water supply was cared for, and there were no other cases; but of course it is not known if there would have been any under other circumstances. Two weeks after the girl returned home, but only 10 days from the apparent date of onset, the sister, living elsewhere but eating with the family, was taken sick; and three days later, both the father and mother became ill. All cases were taken to the Lakeside Hospital, and there is no doubt of the diagnosis of typhoid. At first sight it looks like a series of contact cases infected by the girl who returned from the camp in the incubation period; her activities in the household made it entirely possible for her to have infected the food, but the brevity of the interval between the date of onset in her case and in the cases of the rest of the family, is an obstacle to this possibility. It is hard to isolate the typhoid bacilli from the feces during the first week after onset, or, approximately, until the earliest time for the appearance of a

Widal; but if she was the infecting cause, the transfer must have taken place not later than the third or fourth day. She was not cared for by the sister who came down first, and it looks as though the infection, if it did take place, probably came through the food, as this was practically the only contact which the sister had.

The main argument in favor of this contact is the practically identical onset of the three other members of the family and the absence of any occasion other than lunch at which they were all present. It is, of course, possible that the working daughter was infected separately and that the time of onset was a coincidence.

#### MILK.

The entire milk supply of the city is pasteurized, with the exception of the certified milk, and no series of cases occurred in which any reference to any special milk supply could be noted. In this connection it is of interest to note that there have been no epidemics of sore throat referable to milk since the pasteurization ordinances became effective.

#### FOODS.

One outbreak, occurring in 1920, is definitely attributable to food and is of a good deal of interest, being the subject of a special report published elsewhere. At a country club luncheon attended by a large number of women, one of the caterer's assistants was a carrier, and within two weeks some 40 of the guests and attendants came down with typhoid, two of whom died. The matter was taken up by the health division, although the outbreak occurred outside the city limits, and the carrier was discovered. The majority of the patients were not residents of the city and, accordingly, the cases were not reported to us. This outbreak has already been mentioned under the head of out-of-town cases.

#### WATER SUPPLIES.

The question of water supplies must be divided into several sections, each of which has its own importance. The supply of the city is of two types: On the one hand, the supply coming from the mechanical filter plant on the West Side, opened in April, 1918, and supplying the greater part of the city; and on the other hand, the supply coming from the old pumping station on the East Side, where there is no filtration, but where liquid chlorine is used, and which supplies the east and north sections of the city, over a fairly sharply limited area. In addition to this there are in the parks certain springs, tested at frequent intervals and closed when unsatisfactory, and in the outlying districts a fair number of wells, most of which are more or less unsafe

and are being closed as fast as sufficient pressure can be brought on the owners. Another water problem relates to the bathing beaches and pools and will be taken up separately.

#### SPRINGS AND WELLS.

All the known springs in the city limits are numbered and under the supervision of the health division. They are all shallow, and are practically surface water filtered through a sandy soil, as the whole city, save the extreme southern portion and the high ground to the southeast, is on one of the sand benches of the old Lake Erie bottom, cut by numerous erosion gullies, from the sides of which the springs issue. Frequent tests are made and unsatisfactory springs are closed to the public.

In the outskirts of the city there are still a number of wells, and it is certain that many of these are infected. The histories of the cases, however, in practically all instances, gave the city water as their source of supply and denied the use of wells. A survey is to be undertaken this summer with the intention of examining all wells in the city limits and closing the bad ones. It does not seem probable from the histories that more than one or two cases in the whole three years can be attributed to this cause.

#### BATHING.

There is another factor which is of more importance and relates closely to the character of the water in the lake. This concerns the bathing beaches and bathing pools.

The main bathing areas along the shore of Lake Erie are at Edgewater Park, on the west side, and from Gordon Park eastward on the east side. All these beaches are subject to heavy contamination from untreated sewage, those on the west side from the sewer at the foot of West Fifty-eighth Street, less than a mile away, and draining the greater part of the west side; and those on the east side, from the intercepting-sewer outlet at East One hundred and fortieth, a maximum of 2 miles from any of the beaches and within a mile of many. Laboratory tests of the water at various points show a high degree of pollution, and there is little question that infection can occur while swimming. It is interesting, however, to note that of the many thousands who have used the beaches in the last three years, only 12 give a history of bathing at these points being followed by typhoid infection within a reasonable period. Tabulation of these cases is as follows:

May 20, 1921.

Beach.	Date of bathing.	Date of onset of typhoid fever.
1918—Gordon Park.....	July 29.....	Aug. 16.
Edgewater Park.....	From time to time.....	Aug. 5.
Euclid Beach.....	Aug. 1.....	Aug. 14.
1919—Euclid Beach.....	June 15.....	July 7.
Edgewater Park.....	Sept. 8.....	Sept. 26.
Sewage-disposal plant.....	Aug. 31.....	Sept. 11.
Euclid Beach.....	Various times.....	Oct. 4.
1920—Edgewater Park.....	do.....	Aug. 4.
Beach Cliff.....	July 15.....	Aug. 28.
Overlook Park.....	Various times.....	Aug. 22.
Edgewater Park.....	do.....	Aug. 30.
Lake, various points.....	do.....	July 31.

It is obvious in this series that the interval between exposure to infection and the onset of the disease is within the average of the incubation period of typhoid, and while the fact that other persons in the same vicinity, but with no history of bathing, developed the disease, makes it impossible to make an absolute statement, yet, in the absence of other factors, it seems probable that these cases must be attributed to sewage infection of Lake Erie.

The rest of the bathing cases fall into several groups. There are seven cases in which the patient gave a history of bathing more or less frequently in one of the small watercourses in the city, all of which are open sewers, taking either a direct flow of sewage from the outlets in districts which drain into the lowlands and ultimately into the Cuyahoga River, or the outflow from privies, cesspools, etc., in the unsewered border districts. It is most probable that these cases are direct results of the swims.

Bathing place.	Date of bathing.	Date of onset of typhoid fever.
1919—Riverside Pond of Jennings Avenue.....	Often.....	June 24.
Gully at Forty-sixth Street, south of Scovill.....	do.....	July 9.
1920—Euclid Creek at Nottingham.....	do.....	June 12.
Bedford Glens.....	May 23.....	June 14.
Mill Creek at East Seventy-eighth.....	Often.....	Aug. 10.
Cuyahoga River.....	Various times.....	July 28.
Creek at Linndale (Brooklyn).....	do.....	Aug. 3.
Foot of Clark Avenue.....	do.....	

Four cases give histories of bathing at out-of-town places as follows:

Bathing place.	Date of bathing.	Date of onset of typhoid fever.
1920—Turkeyfoot Lake near Akron, Ohio.....	July 5.....	About Aug. 1.
Linwood Park Ohio.....	July 15.....	About Aug. 10.
Cedar Point, Ohio.....	July 1.....	
Shore Acres (stop 128).....	(?).....	}) About July 28.

Two gave histories of bathing in pools, as follows:

Bathing place.	Date of bathing.	Date of onset of typhoid fever.
1918—Garfield Park.....	Aug. 10 and 18.....	Sept. 5.
1920—Jewish Educational Alliance.....	(?).....	Sept. 7.

In these last two series, while in certain cases the dates are conformable to the possibility of infection, it is questionable if much stress can be laid on the relation of the bathing to the disease. The Garfield Park tank is city inspected and tested, and the series of cases of infection from contaminated water in that park occurred at the same time. One patient, a boy of 10, had no recollection of when or where he drank water while in the park.

In summation, then, of 25 cases in which a history of bathing was obtained, 19 had selected highly contaminated places for their baths, and may be considered as probably infected in this manner. Of the remaining six, the dates in four cases of out-of-town visits in districts by no means free from typhoid suggests a very possible etiology dating to the trip, but whether the disease was due to the bathing or to other reasons can only be surmised. In the other two cases, the relation, in the absence of any other cases referable to these sources, may be considered as very doubtful.

#### USE OF KNOWN POLLUTED SOURCES.

*Garfield Park series.*—A small but clear-cut group of cases came from the use of a highly polluted water not intended for drinking. Analysis of this series is as follows:

Garfield Park lies on the southern border of the city and has several springs, from which the water is available either by direct flow or by pump. These springs are examined by the city laboratory at frequent intervals in the summer and once a month in the winter. There is also a bathing pool, fed by spring water, and below it, on the slope toward the Cuyahoga River, is a public privy with a sewer draining to the river.

There was a sudden increase of cases among persons living on the South Side, and occurring mostly in young adults. Investigation showed that the outflow from the swimming pool crossed under the road near the car stop for the park and that the contamination from the urinals and public privy also passed this point. A large group of the cases gave a history of drinking this water as they got off the cars, though there was a marked and tested spring less than five minutes' walk away. The park department was advised of the condition and rendered the contaminated water inaccessible. No further cases with this etiology were reported, though special inquiries were made until six weeks after the covering of the stream.

It may be noted that such pollution has always been a problem in connection with the city springs. The soil is sandy and the water is, in the main, a naturally filtered surface water, finding exit on the eroded banks of the Cuyahoga and its tributaries and such creeks as flow directly into Lake Erie. The springs are carefully watched, inasmuch as changing conditions, such as extensive building operations, often cause a pollution of a temporary or permanent character, and, under these conditions, they are closed at once, with the cooperation of the park division. It is, however, the rule to find that the closed springs have been dug out again by those who wish to use the water, regardless of the dangers; and in one case even the addition of a constant flow of road oil, in sufficient amounts to give a very marked odor and taste, seemed only to stimulate the desires of the users. Near the ball grounds in Garfield Park is a surface drainage rivulet which is frequently preferred to the pump at the field. Unless all surface water is covered, an obvious impossibility with a landscaped park, many will use it, often with the results cited in the present instance.

In this small epidemic there were 13 cases with history of onset between July 7 and 31, three dating their onset to August 9, 10, and 11, and one on September 5, which is rather long in incubation relations and which may be due to other causes, since the place was closed off August 5.

#### WATER DEPARTMENT SUPPLIES.

The accompanying map shows the areas supplied by the two systems. It might be thought easy to determine the relative importance of each from the distribution of the cases; but it must be remembered, however, that the great majority of the residents in one quarter work or shop in another, so that, save in the comparatively few cases of children and housewives who have not been away from their immediate neighborhoods, both sources have been freely used. In fact, a population density map, prepared from the figures of the last census, shows the proportion of cases in the various neighborhoods of equal sanitation to depend mainly on the population per acre. Taken by itself this might suggest that the water bore no relation to the problem, and a careful discussion and analysis of the cases is necessary.

*Source.*—The ultimate source of the city supply is Lake Erie, through two cribs four and a half miles from the water front opposite the mouth of the Cuyahoga River, which drains a hundred miles of farming watershed dotted with small communities. The water enters through tunnels to the pumping stations, from which it is supplied to the consumer; at the Division Street station after filtration and treatment with liquid chlorine, and at the Kirtland Street station after treatment with liquid chlorine.

*Character of untreated water.*—With the growth of the city and the increase of the sewage poured into the lake, the quality of the lake water has steadily deteriorated, until at present it shows the presence of *B. coli* in over 85 per cent of 10 c. c. samples, and very frequently in 1 c. c. samples, or even in smaller amounts. It was on account of this progressive deterioration of the supply that the writer induced the city to begin chlorination in 1911 and that he has since urged in season and out of season that the tests showed the chlorination to be inadequate. The figures showing the annual summary of the raw-water tests, Table IV, will sufficiently indicate its quality.

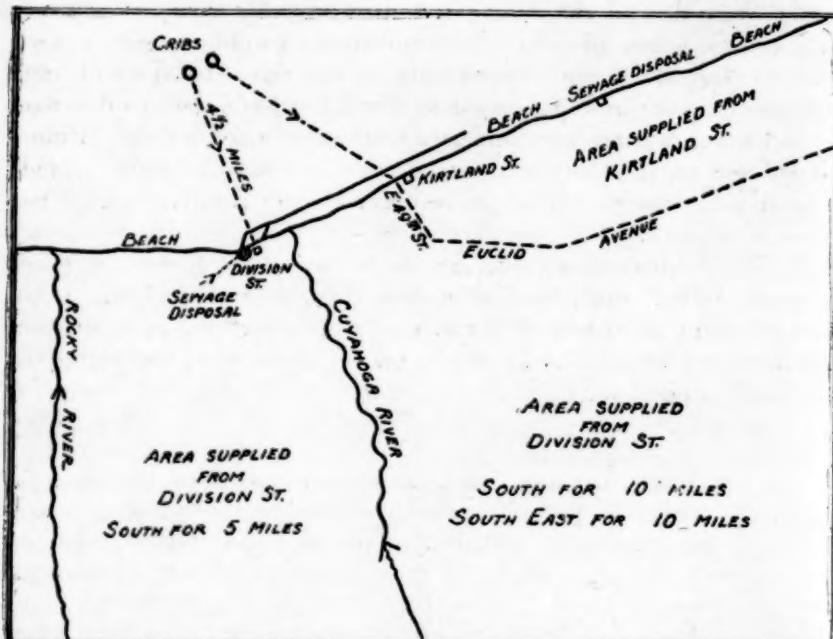


FIG. 1.—Sketch showing the areas supplied by the two water plants. The cribs are four and one-half miles out in Lake Erie.

TABLE IV.—*Annual summary of raw water samples.*  
[Figures refer to number of days on which lactose fermenters were found in samples.]

	1910	1911	1912	1913	1914	1915	1916	1917	1918	1919	1920
January.....	5	16	(1)	18	19	11	19	18	22	14	24
February.....	10	13	10	14	23	7	24	9	19	10	17
March.....	16	17	19	14	24	12	27	27	22	20	23
April.....	7	11	16	22	21	9	25	24	21	21	16
May.....	12	11	11	23	22	11	26	24	23	20	25
June.....	17	15	18	22	20	23	20	27	25	23	25
July.....	14	12	17	19	16	20	18	26	24	26	24
August.....	18	8	16	6	16	23	15	25	20	26	21
September.....	14	12	14	11	24	18	15	27	21	22	23
October.....	21	(1)	16	13	21	23	23	27	11	26	21
November.....	14	(1)	12	19	19	20	13	28	20	23	20
December.....	9	(1)	4	25	19	22	13	24	21	23	20
Total.....	157	104	152	206	244	199	238	286	252	252	265
Monthly average.....	13	12	14	17	20	16	19	24	21	21	22

<sup>1</sup>Chlorine started September, 1911, and no raw samples were taken until Feb. 8, 1912.

As a rule no samples were taken on Sundays or on holidays, so that in each month the maximum number possible is about 26. It will be observed that this limit is not infrequently reached.

*History of improvements.*—A brief résumé of the changes in the Cleveland water supply will be of value at this point. Up to 1904 the supply was taken from a crib some 2 miles from shore and was subject to gross pollution, as shown by a very high typhoid rate, reaching 108 per 100,000 in 1903. A new intake  $4\frac{1}{2}$  miles from shore was in process of building, and its use was begun in April, 1904, resulting in an immediate drop in the typhoid rate to about 20 per 100,000. As the growth of the city continued and the development of the intercepting sewer system threw more and more fresh sewage into the lake, small winter epidemics, which were due to water and were closely associated with weather conditions, showed clearly that the pollutions of the lake were reaching the intake. The continuous laboratory tests confirmed this, and in 1910 the writer urged upon the city the necessity of additional precautions and suggested the installation of hypochlorite treatment. The idea was accepted, and through three months during the winter of 1910-11 a series of experiments was made with the assistance of Dr. H. D. Haskins, then assistant professor of chemistry in Western Reserve Medical School, and a group of student assistants. With the cooperation of the water department a continuous-flow reservoir containing 75 cubic feet was installed in the medical school building. This apparatus was so arranged that the inflow and outflow were accurately metered, and measured doses of hypochlorite and of *B. coli* could be introduced at will. Thorough mixing was obtained by a series of baffles, and samples were taken from different points and at different depths by a series of continually dropping glass siphons. The experiments showed that with the water as obtained from Lake Erie, a dosage of 0.7 parts per million was necessary to remove *B. coli* from 10 c.c. samples and that smaller doses were unsafe. With this dosage, and with the water at that time, there was neither taste nor smell at the end of one hour.

On the basis of these experiments, dosage tanks were set up at Kirtland Street and the treatment was begun in September, 1911. Inasmuch as there was no intermediate reservoir between the intake and the pumps, it was thought best to introduce the hypochlorite at the bottom of the entering shaft, so that it would have for mixing time the height of the column, about 100 feet, and an additional 20 feet or so including an open screen well. This would also admit of aeration and removal of odors. As soon as the apparatus was in working order, the condition of the water improved and the typhoid curve fell with unusual sharpness. Inasmuch, however, as a certain

proportion of the consumers in the immediate neighborhood of the pumping station received the water within less than one hour after treatment, and, consequently, noticed a smell of chlorine from time to time, complaints from this district were frequently received, and the familiar range of diseases and difficulties supposed to be caused by chlorine was gone over again and again. These complaints were decreasing in number when, on February 22, 1912, there was a heavy rain and an associated thaw, which carried an unusual volume of water into the Cuyahoga and brought the trade wastes out as far as the crib and farther. The taste of these wastes had been recorded from time to time in the laboratory records in years prior to the chlorine treatment, but of course in this instance everyone believed it to be due to the chlorine. A storm of protest swept the city hall, and the mayor bent beneath it, ordering a reduction of the dosage. This was done, and inasmuch as the division of health can act toward the water department only in an advisory capacity, the balance between a safe water and an always palatable water was weighed down by the protests, and the dosage has never since been up to the required strength.

In 1914, after another series of floods had proved correct the contention that Cuyahoga River water reached the intake, the writer was appointed on a filtration commission to suggest future plans for the water supply. As a result of the recommendations of the commission, a filter plant of the rapid mechanical type was established at the old pumping station at Division Street (see map), which had been unused since the new intake at Kirtland Street had been put in use. A new tunnel was built, bringing the water directly from a new crib at about the same distance from shore as the one feeding Kirtland Street, and about half a mile farther west. It was supposed that this would supply the entire city, but it was found that the distance and friction head were too great and that it was necessary to keep Kirtland Street in operation, even after the filter plant began service in April, 1918. Through 1918 and 1919 the area served by the two plants varied somewhat; though from the beginning, the West and South Sides and the higher levels were served from Division Street, while the East Side on the lower level had mainly the Kirtland water. In 1920 this was stabilized to the areas shown on the map, though it must be clearly understood that the line of demarcation is not a sharp one. The method of chlorine dosage at Kirtland Street had been altered, as it was found inconvenient to use the long pipes, and the chlorine was introduced in the screen well. The disadvantage of this procedure was that the water went under pressure in a closed circuit within a few minutes after dosage, thus allowing no chance for aeration. In consequence, the area in which a smell of chlorine could be noticed at the tap was markedly

increased. With the installation of the filter plant, a dosage of chlorine was also begun on the filtered water by means of a liquid chlorine automatic apparatus; and in June of the same year, 1918, a similar apparatus was installed at Kirtland Street, the use of bleach being given up.

*Character of treated water.*—The relation of the amount of chlorine used to the number of lactose fermentations is shown in Table V, which carries the records from the year that chlorine dosage began up to 1920, inclusive.

TABLE V.—*Chronological relation of lactose fermentation and hypochlorite dosage.*

[The first column, indicated by T. ("Times"), shows the number of days during the month in which lactose fermentation was found in the treated samples. From 1911 to 1916, inclusive, the samples recorded were those taken at the tap in the city laboratory, representing water about one hour after dosage. In 1917 and the succeeding years the figures are taken from the reports of the water department, and show the condition of the water a somewhat shorter time after treatment. The second column, labeled Pts. ("Parts per million"), shows the average dosage of hypochlorite during that month.]

	1911	1912	1913	1914	1915	1916	1917	1918	1919	1920
	T. Pts.									
January.....	80.73	100.34	160.68	50.40	200.33	120.30	120.39	110.29	110.22	
February.....	5.72	6.37	15.61	2.32	27.04	6.20	10.37	4.24	1.22	
March.....	8.54	6.39	15.50	11.28	30.07	5.19	15.37	14.24	1.24	
April.....	8.57	17.58	22.50	7.27	27.09	26.17	14.40	12.26	8.27	
May.....	14.50	15.59	25.48	6.27	29.07	13.24	5.42	14.36	15.32	
June.....	6.40	16.58	13.46	5.26	25.06	17.36	18.24	9.33	20.35	
July.....	2.32	14.50	8.44	12.28	15.04	1.33	6.24	6.35	11.34	
August.....	5.45	8.45	10.47	20.31	14.22	3.33	12.24	9.35	5.34	
September.....	1.6	2.41	10.43	13.49	7.44	8.27	5.33	11.24	5.35	
October.....	16.0.94	4.40	7.46	15.49	23.44	18.28	3.33	8.24	10.36	7.36
November.....	11.87	6.41	12.55	19.43	22.43	4.31	9.33	4.24	5.33	6.35
December.....	9.59	4.39	18.64	11.39	19.45	10.41	3.28	8.24	31.32	13.35
Average.....	... 80	... 49	... 50	... 50	... 35	... 18	... 28	... 30	... 31	... 31

<sup>1</sup> Use of bleach begun.

<sup>2</sup> Use of liquid chlorine begun.

1912—Feb. 1-22, inclusive, 0.75.

Feb. 23-29, inclusive, 0.338.

Before entering into interpretations of the relation of the water supply to the typhoid incidence, there are certain points of technique that must be discussed, lest it appear that injustice is being done to the water department, whose records do not wholly agree with those in the present paper.

The point of difference relates to the confirmation of the presumptive tests for *B. coli*, a question on which there is always a difference of opinion between health office and waterworks.

It is generally agreed that in an unknown water, or one on which a limited amount of work has been done, the presumptive test must be confirmed to eliminate the anaerobic fermentations, which, as shown by Cumming (11) and others, are evidence of a sewage contamination, but offer no evidence of the date of this contamination. Such fermentations ordinarily occur late, after 36 to 48 hours, and sometimes even later, though according to the reports of Frost (10) in connection with the studies of the Ohio River, and from personal

information received from him, as well as from my own work, such formations of gas may occur earlier, though this is rather the exception than the rule. According to many observers, and noted in my own series, it is harder to isolate *B. coli*, or the members of the group, in water which has been filtered or disinfected, even when gas formation in lactose broth is active in the first 48 hours. Moved by these reports and by the results obtained here in routine isolations, the writer undertook some investigations at various seasons on the treated water (which were interrupted by the war). It was found that when plates were made from the tubes showing gas formation *at the end of 48 hours*, a large percentage failed to show *B. coli* or the group, and in many instances there was no growth except a few colonies of aerobic spore formers. In such cases it was found, as might be expected, that the reaction of the tube had become markedly acid. When cultures were made *in the first 24 hours* the percentage of isolations increased, but even here there were a number of failures. When, however, at the time the plates were made, a *subculture from the original fermentation tube* was made into another fermentation tube, this usually showed gas, even when the plates from the original were negative, and from it could be isolated an aerobic nonspore-bearing lactose fermenter. By the use of a good deal of care and persistence, more than is practicable when a large routine series is being run, isolations were obtained in over 90 per cent of cases. In a number of instances sufficient to indicate the general trend, though insufficient for publication or conclusion, the tubes from which aerobic fermenters had been isolated were heated to 80° for 10 minutes, and tested for anaerobic fermenters. The results showed, as might be expected, that there was a more or less constant run of anaerobes, covered in many cases by the more active aerobic gas formers.

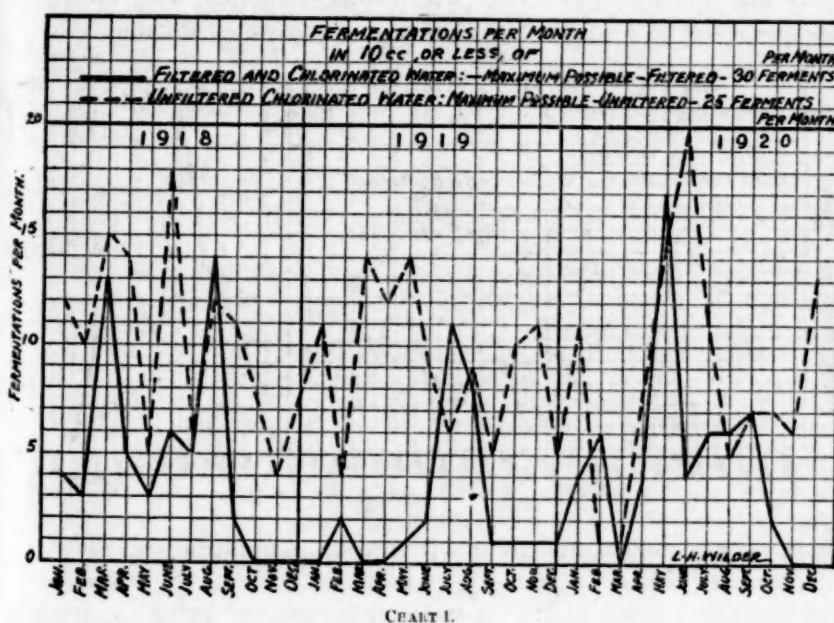
The technique pursued at present at the water department laboratories is as follows:

Fermentation tubes of 1 per cent lactose broth are inoculated with 1/10, 1, and 10 c. c. of water and kept at 37° for 48 hours. Plates are then made on Endo from the lowest dilution forming gas, and incubated 48 hours. Characteristic colonies are selected and inoculated into lactose broth, which is examined after 48 hours. From the positive tubes the methyl red and Voges-Proskauer tests are made.

My own work on the Cleveland water has shown that delay till the lapse of 48 hours markedly decreases the positives, though waiting till this time is the routine in the last edition of Standard Methods. Additional work on this subject is in progress in the laboratory to check up former results.

Moreover, in my opinion it is not sufficient to say that because no aerobic fermenters developed on the plates, the gas formation was anaerobic. According to a statement recently sent me by Dr. W. H. Frost, the evidence necessary to this effect is "in such case a transfer directly to another fermentation tube should give gas, and this tube in turn should give negative plates with a positive transfer to a third fermentation tube." This detail is rarely carried out in routine work.

In the Charts 1 and 2, therefore, the figures represent lactose fermentations with more than 10 per cent gas occurring in the first 36 hours without regard to completion of the presumptive test. This probably is excessive, but the writer believes that the curve

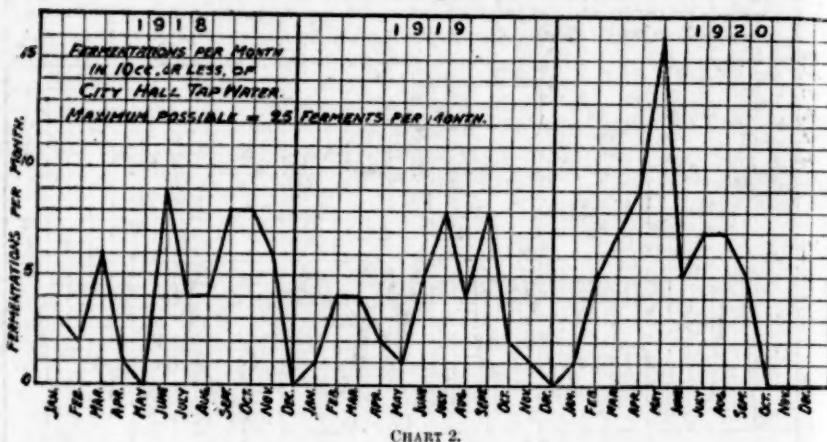


would be lowered by an average of not more than 10 per cent if the methods above noted could be carried out as a routine.

Graphs comparing the fermentations with the colon findings in the water department records, show a great variation in percentage of confirmations, which does not coincide with weather or season. Taking the filtered and unfiltered supplies separately, the confirmations for 1918, 1919, and 1920 are about 70 per cent in the former and 60 per cent in the latter. Inasmuch as a similar analysis of the raw water tests shows over 95 per cent confirmations, it is clear that the technique is being carefully carried out, and that the difference in the treated waters is due to the difficulties noted above. In sum-

mation, I believe that with painstaking extra-routine work on the early fermentations the percentage of confirmations would approach that of the raw water, and that in any case the *form* of the curve would not be altered materially.

Charts constructed on this basis show the total fermentations with over 10 per cent gas occurring within 36 hours, for the filtered and chlorinated water, and for the unfiltered but chlorinated water. In all discussions in this article the water entering the pipes for delivery to the consumer is the only water considered, the quality at the preliminary stages being omitted from discussion. In Chart 2, similarly constructed, is shown the total fermentations for the water at the city hall tap in the laboratory, revealing its more or less mixed origin in 1918 and 1919, and its close correspondence in 1920 with the curve for the water at Division Street Station, from which it came.



For completeness, and to avoid criticism of unfairness to the water department, Charts 3 and 4 were prepared. These show the actual unmodified records of that department, with the actual number of days on which fermentation was noted and the actual number of days on which confirmations were made. It will be noted that the solid line on Chart 3 is the same as the dotted line on Chart 1, and that the solid line on Chart 4 is the same as the solid line on Chart 1. It will also be noted, in connection with the subsequent discussion, that the form of both curves is nearly identical in presumptive and in confirmed tests, though the curve for the latter is rather lower throughout.

These figures come from the records of the water department and constitute the basis of their official reports; but, as previously noted, the totals in my charts are based on presumptive rather than confirmed tests.

At the city laboratory of the health division there has been a daily sample taken from the tap since 1903. Prior to 1918 this, of course, represented the unfiltered lake water, and prior to 1911, the unchlorinated unfiltered lake water. In 1918 and 1919 the supply was a variable one, sometimes from Division Street, sometimes from Kirtland Street; but in 1920 it was entirely from Division Street, and the curve (Chart 2) follows closely the curve of the water department for that station.

In the effort to get a check on the Kirtland water, a series of examinations was begun in 1920 from certain of the police stations, taking, on the one hand, from those receiving water from Division Street, and, on the other hand, from those receiving water from Kirtland Street. The agreement of the curves with those of the sources of the water is sufficiently close to be within the limits of error and is a valuable check on the results at the pumping stations.

A summary of the findings in the various supplies is as follows:

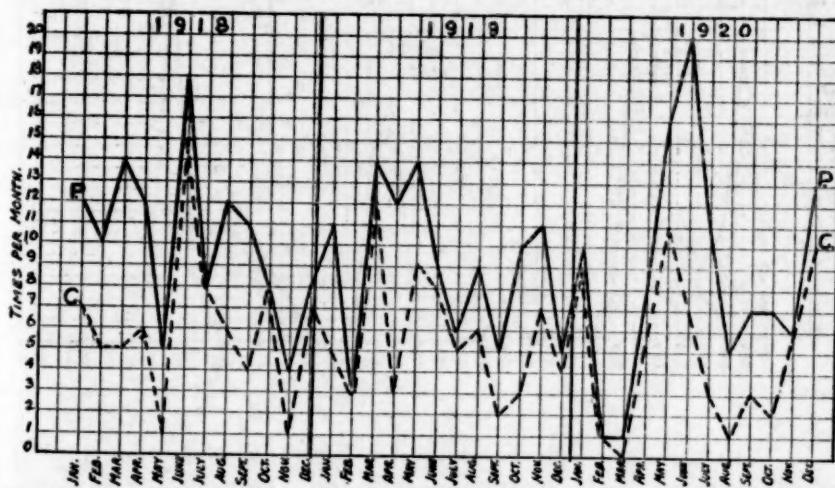


CHART 3.—Presumptive and confirmed tests on chlorinated water, Kirtland Street. Water department findings.

Following first the treated and unfiltered water from the Kirtland Street Station we find the following:

In 1918 the chlorinated water showed fermentation in 40 per cent of the samples (this figure is obtained by dividing the number of days positive by the number of daily examinations) and maintained a more or less constant level, never falling below 20 per cent and only occasionally rising above 50 per cent.

In 1919 there were 37 per cent of fermentation days, with an even more level curve, lying almost entirely between 20 per cent and 50 per cent.

In 1920 there were 35 per cent of fermentation days but with a much wider range, reaching as high as 78 per cent in June and falling to almost nothing in February and March.

Taking the average of these results we find that in the chlorinated water there was fermentation in 37 per cent of all days examined, which, on the basis of an average 90 per cent in the raw water, gives an average reduction of 59 per cent only, showing clearly that the chlorination was inadequate.

Following next the filtered and treated water, we find the following:

In 1918 the effluent from the filter plant, after chlorination, showed 22 per cent of fermentation days, the worst periods being in March and in August, when the month percentage passed 50.

In 1920 the same effluent showed 15 per cent, the worst months being May, in which 55 per cent of the days showed fermentation, and June, July, August, and September, which showed an average of 19 per cent.

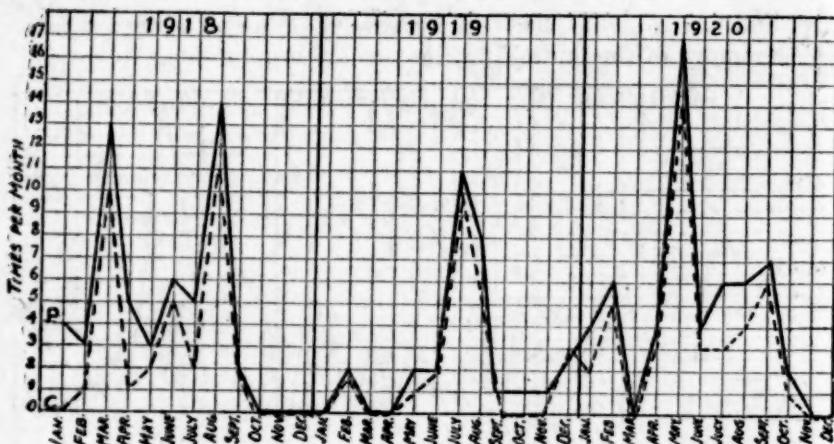


CHART 4.—Presumptive and confirmed tests on filtered and chlorinated water, Division Street. Water department findings.

In 1919 the same effluent showed 8 per cent, more than half of which occurred in the months of July and August, the rest of the year being eminently satisfactory.

#### Possible Relations of the Water Supply to the Typhoid Incidence.

As a preliminary basis for discussion, Chart 5 was prepared. In this chart the typhoid incidence for the three years has been assembled, with the omission of all cases which were of out-of-town origin, or which showed any definite probable etiology, such as baths along the lake shore or elsewhere in polluted water, within a probable incubation period. In other words, this is, as far as possible with the information at hand, a chart of the residual typhoid.

It will at once be noted that the curves for 1918 and 1920 are practically identical; whereas the curve for 1919, besides being lower, has its rise at a different time. It will also be noted that each of the

three years has a preliminary rise occurring in the spring or early summer. As far as possible the cases have been charted according to the date of onset; but in a good many cases it was necessary to guess at this, and there must be a fair margin of error.

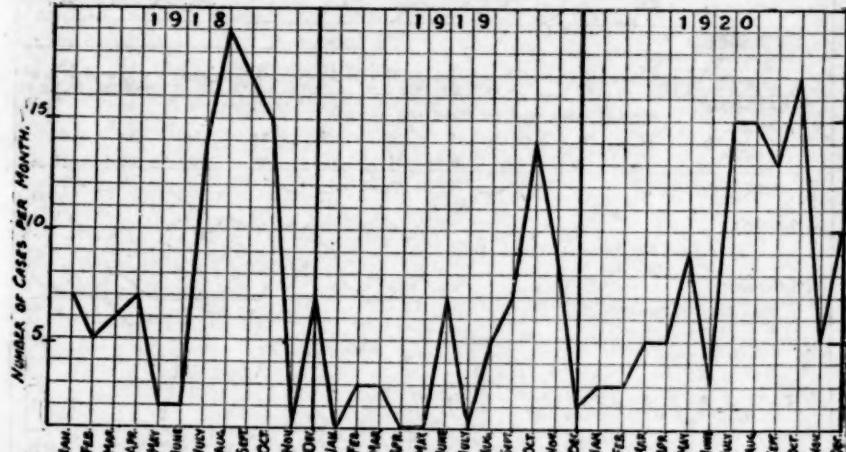


CHART 5.—Corrected monthly incidence of typhoid fever in Cleveland for 1918, 1919, and 1920. (Out-of-town cases and cases of known etiology are omitted.)

In 1918 the bad periods for the filtered and treated water were in March and August, though it was none too good in the interval; and for the unfiltered but treated water, in March, April, and June, with

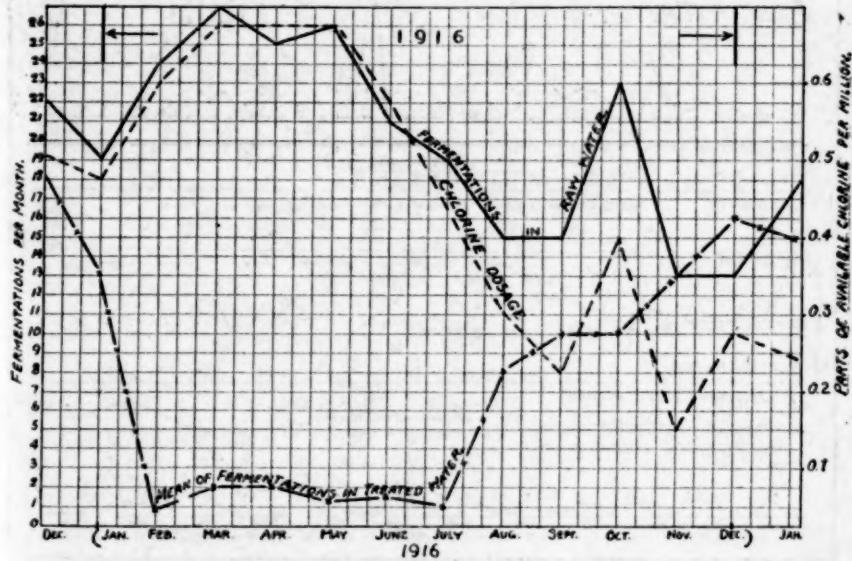


CHART 6.—The effect of low chlorine dosage in 1916.

other earlier and later periods when it was unsatisfactory. In this year the preliminary rise took place in March and April, and there was a notable drop following the best combined period for the first

half of the year. The high level of incidence ran through July, August, September, and October; and it is at least suggestive that

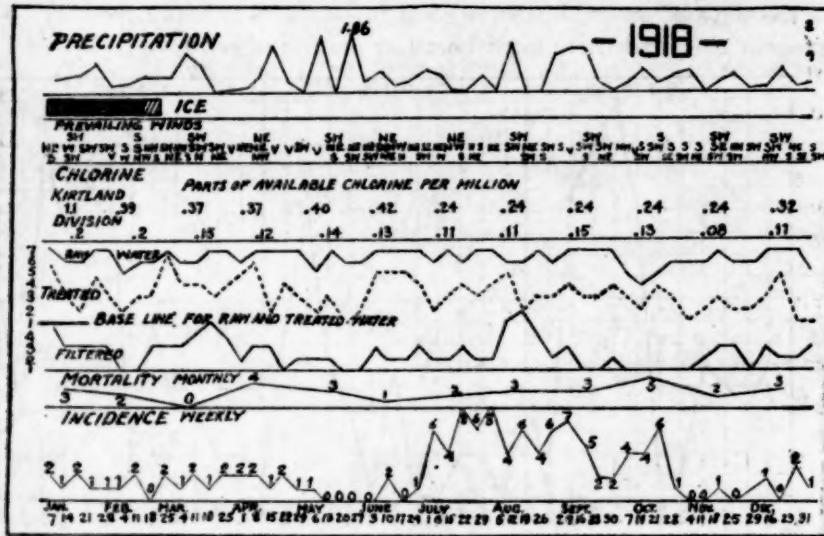


CHART 7.

the worst water combinations occurred in June, July, August, and September.

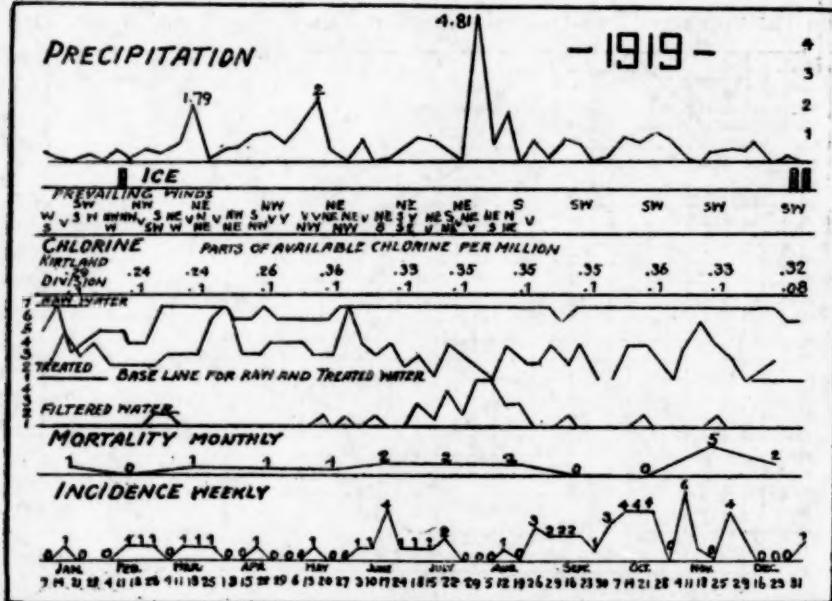


CHART 8.

Passing to 1919, we find that the worst condition of the Kirtland water came in March, April, and May, and that the preliminary rise took place in June; whereas the worst of the filtered water was in July

and August, and the high peak of incidence ran through from the middle of August to the end of October, with a very sharp rise and sharp decline.

In 1920 there was a serious deficiency in the quality of the water from both sources in the months of April, May, June, and July; and after a preliminary rise in May, followed by a fall in June, there was a very sharp rise in July, August, September, and October.

It will of course be urged, and quite properly, that these curves also correspond to the so-called summer typhoid, which may be due to other factors than water. On the other hand, at least in the 1920 cases, every attempt has been made to find out about cases, and it is surprising how many persons are found who had not been out of the city limits in the incubation period, had not been in swimming, had

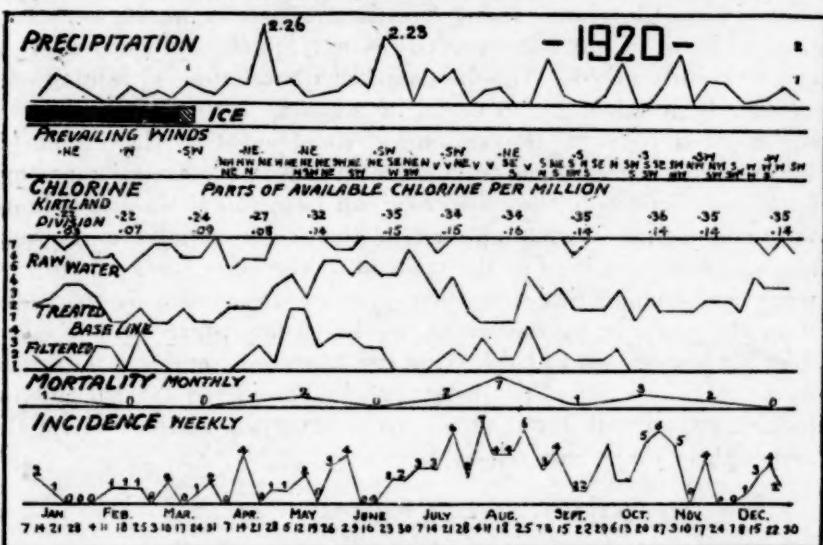


CHART 9.

not eaten at any suspected place, or in fact done anything that is in any way suggestive of an etiological relation. The writer is inclined to believe that although undoubtedly some of the cases have been caused by carriers, or food, etc., yet the removal of these would cause a lowering of the curve rather than a material change in its shape.

The charts have been proportioned to emphasize the heights of the incidence and pollution columns, inasmuch as the total number of cases is not very large, but those for water and typhoid are on the same scale and may be fairly compared. The fact has been long urged and frequently forgotten that a water supply polluted in any degree may give rise to cases varying in number from a series of intermittent and apparently sporadic cases to a definite epidemic, and the scales of the present charts are calculated to emphasize this epidemic type.

In previous publications on this subject there have been numerous instances where the relationship of high frequency of pollution in the water as it reached the consumer was clearly related to rises in the curve of typhoid incidence; and in order to show the relation of the amount of available chlorine to the number of fermentations in the water supply, Chart 6 was prepared, showing how, in 1916, when, for some reason, an unusually small amount of chlorine was used, the curve of pollutions in the treated water followed that for the raw water at a distance inversely proportional to the amount of disinfectant used.

Three complete graphs are also presented, showing rainfall, ice conditions, winds, chlorine administration, and the fermentations in the raw and treated waters, together with the incidence and mortality in the Cleveland cases. This is arranged by weeks, on a vertical scale, as in previous reports, so that the chronological relation can be readily noted. The discussion of the relations of rainfall and ice has been taken up in detail in previous reports, but may be summarized here by the statement that floods in the Cuyahoga River, a solid sheet of ice from shore to cribs, or floating ice passing back and forth near the cribs, have all been found to bear definite relations to the contaminations in the water supply, and often, indeed, to sudden rises in the typhoid incidence. There are no currents in Cleveland Bay save those that are determined by the water from the river, or by the winds, so that winds which tend to carry floating sewage toward the cribs are dangerous, and storms which result in heavy turbidities must also be considered. With this information and with the detailed charts elsewhere in the body of the article these graphs are self-explanatory.

#### STATEMENTS FROM THE WATER DIVISION.

It is not the desire of the writer to enter upon a controversy with the water department, but it appears proper to quote rather fully from the report submitted in March, 1921, by J. W. Ellms, engineer of water purification for the city, a man of large filter-plant experience. He states, in part, as follows:

"There are two points on which I can not agree with Dr. Perkins in his deductions as to the seeming relationship between typhoid-fever cases and fluctuations in the quality of the supply.

"There is not in the years studied always a rise in typhoid fever corresponding to an increasing or even sustained higher content of *B. coli*, even though at times there does appear to be a certain sequence. In 1918 the rise in typhoid appears to be coincident with a higher *B. coli* content for the disinfected filtered water, although the disinfected raw water remained low.

"During the year 1919 the *B. coli* content of the disinfected raw water was quite high until June, although the content for the filtered water ran very low. Increase in typhoid was not marked until August, reaching a peak in October. However, the *B. coli* content of the water from September until the close of the year was quite low.

"During 1920 the highest *B. coli* content of the water occurred during May and fell off markedly until September. The filtered water continued very low, although there was a slight rise in the *B. coli* numbers in the disinfected raw water.

"The typhoid cases began rising in June, reaching their maximum number in August, but continuing quite high for the remainder of the year. In other words, when the typhoid was the highest and continued so, the water was of better quality than any supplied during the early months of the year.

"The second point I wish to mention is that Dr. Perkins fails to give sufficient weight to the actual numbers of *B. coli* present in the *water supplied to consumers*. *Certainly no one would deny that a polluted water, such as is now obtained from Lake Erie, is ever free from the presence of this organism, no matter how successful purification processes may appear. It is always present in the distribution system, but that does not necessarily imply that its presence indicates danger.*<sup>1</sup>

"Judged by such standards as bacteriologists tentatively have accepted, the Cleveland supply averages well. For the year 1918 the *B. coli* index was for both disinfected raw water and filtered water about 1.8 per 100 c. c. For 1919 it was 3.6, and for 1920, 3.4. Considering that we are obliged to disinfect raw water for the 40 per cent of the supply, these figures should certainly be given considerable weight.

"A glance at the table showing the quantities of chlorine used will show a treatment that always produces an excess of Cl in the water; and aside from the short period in 1919 when we were having trouble with our chlorine apparatus at Division Avenue, the quantities applied are maintained uniformly and without difficulty. The great excess of chlorine shown during the cold months of the year means, of course, slower reaction velocities, and probably a safer water. However, during the warm months a good excess is usually found. The less excess of chlorine usually found at the Division Avenue plant is due to a longer interval between the time of dosing and the taking of samples.

"In conclusion I may add that I can not believe that there is a sufficient relationship between fluctuations in the quality of the supply and the incidence of typhoid fever cases whose histories do not reveal the source of infection, to attribute the rise in the summer typhoid to the water supply."

<sup>1</sup> Italics not in original.

## DISCUSSION OF STATEMENTS FROM THE WATER DIVISION.

In other words, the water department continues to support the same theses as in the past, namely, that unless *every* period of bad water is followed by an epidemic, *no* epidemic following bad water can be attributed to that factor, even though the sequence may appear; and further, that it is unnecessary to furnish a better water than is being furnished. The same sort of report was made in the discussions when the use of chlorine was under consideration, and again when the question of the need of a filtration plant came up; and these reports are accessible in my files. The sanitary control of the water supply is not vested in the division of health, which is, however, and quite properly, held responsible for the typhoid rate; and for this reason it is important to make the matter clear once for all.

## NEED OF A WATER CONFORMING TO FEDERAL STANDARDS.

It is the opinion of the writer and of the Division of Health of Cleveland, that with the available facilities in the form of a modern mechanical filter plant for 60 per cent of the city water, and a liquid chlorine installation for the remaining 40 per cent, a water should be supplied which comes up to the Federal standard for common carriers. These requirements should be met at all times and not for part of the time; and in consequence, the colon index or any other average covering an entire year is misleading, since a bad period may exist and still be of short enough duration to allow of a good average for the year. The graphs showing the findings of the water department, already commented on, show this clearly. The statement italicized, to the effect that no one could expect a water so polluted as Lake Erie to have *B. coli* entirely removed from it, while correct if literally taken, is aside from the point, as the removal to a certain point only is urged.

The Federal bacteriological standard requires that not more than one of five 10 cubic centimeter amounts of the water tested shall show *B. coli* by the methods in current use in the laboratories, and the charts show that there are many periods of some duration in which this is not the case. In the report of the commission appointed by the Secretary of the Treasury to recommend standards of purity for drinking water supplied by common carriers, it was stated further, after detailing the standard, that it is not an ideal one, but merely indicates the *maximum* pollution permissible. It is stated also that this is a standard *which will bring the drinking water supplied by common carriers up to the level of purity of that of satisfactory municipal plants, and that it is not sufficiently stringent to be a burden to them.* The Division of Health believes that the water which is supplied to the people of Cleveland should at all times reach the standard required on rail-

road trains. It would appear that the facts that other cities with pollution as heavy as ours in their raw water succeed in this, and that in our plant we succeed part of the time, without reference to season, indicate that it is possible.

Finally, it is felt that since the water of Lake Erie as supplied to Cleveland for the last 20 years has been found guilty in connection with many outbreaks of typhoid fever; and since every improvement in the supply has been followed by a drop in typhoid incidence, followed again by a slow rise as the population and sewage pollutions increased; therefore, so long as the standard set by the Federal Government is not constantly reached or exceeded, there is cause for grave suspicion of the water supply as an etiological factor in the residual typhoid.

#### Summary and Conclusions.

1. During the three years, 1918, 1919, and 1920, there were reported or uncovered in Cleveland 346 cases of typhoid in which no etiology other than that related to city conditions could be obtained from the histories, and 90 in which such an etiology was obtained.
2. After further analysis of these city cases and the removal of all in which a definite etiology could be secured, there remained 236.
3. Polluted water at bathing beaches and at other uncontrolled bathing points probably was the etiological factor in a small number of cases.
4. Drinking of grossly polluted water at a drain outlet was the cause of a number of cases in one short period.
5. The number of cases in which contact could be determined as the essential feature was small.
6. Few cases indicated food as the causative factor.
7. During this same period there were two water supplies—one supplying one-fourth to one-third of the population and consisting of lake water treated by chlorination, and the other system supplying the rest of the city and consisting of filtered water, with final treatment by chlorination.
8. Graphs of the tests made on each of these waters showed, as regards the unfiltered chlorinated water, that for nearly half the time there was fermentation in 10 cubic centimeter amounts, indicating that the chlorine dosage was inadequate.
9. Graphs of the tests on the filtered chlorinated waters showed an irregular curve, better in 1919 than in the years before or after, and a fermentation in 10 cubic centimeter amounts of 22 per cent in 1918, of 8 per cent in 1919, and of 15 per cent in 1920. These periods were localized, the curve showing sharp rises and falls ranging from 55 per cent to zero.

10. Graphs of the water as supplied to the city hall and of the water at certain of the police stations agreed almost exactly with the curves of the water at the distribution points.

11. Graphs of the residual cases noted under paragraph 2 showed two rises each year—a small one in the spring or early summer, and a larger one in the late summer or early fall.

12. Comparison of the dates of the onset of these cases showed a rather remarkable relation to the periods when the water was least satisfactory.

13. Inasmuch as it is considered to be practicable to reduce the pollution in either chlorinated or filtered water to a minimum by the means available; and inasmuch as the raw-water supply is constantly grossly polluted; and inasmuch as the number of cases of indeterminate etiology in each of the years in which the water was unsatisfactory was twice that in the year in which the water was best; therefore, it is believed that there is a definite relation between the water supply and typhoid incidence, and that as soon as the pollution in the water as supplied to the consumer is brought to an irreducible minimum, there will be obtained a much better typhoid curve, the residual typhoid being due in such a case to carriers, contacts with missed cases, etc.

#### References.

- (1) Typhoid Fever in Cleveland in Relation to Pollution of Lake Erie: Cleveland Medical Journal, 1911, X, 81.
- (2) Typhoid Fever in Cleveland in 1911: Cleveland Medical Journal, November, 1912.
- (3) Typhoid Fever in Cleveland in 1912: Cleveland Medical Journal, September, 1913.
- (4) Typhoid Fever in Cleveland in 1913: Cleveland Medical Journal, November, 1914.
- (5) Typhoid Fever in Cleveland in 1914: Cleveland Medical Journal, December, 1915.
- (6) Typhoid Fever in Cleveland in 1915: Cleveland Medical Journal, July, 1916.
- (7) Typhoid Fever in Cleveland in 1916: Cleveland Medical Journal, May, 1917.
- (8) Typhoid Fever in Cleveland in 1917: Cleveland Medical Journal, June, 1918.
- (9) Bacteriological Standards for Drinking Water: Public Health Reports, November 6, 1914, page 2959. Reprint No. 232.
- (10) Confirmation Tests for *B. coli* in Routine Water Examination: American Journal of Public Health, 1916, page 585.
- (11) Investigations of the Pollution and Sanitary Conditions of the Potomac Water-shed: Hygienic Laboratory Bulletin No. 104, U. S. Public Health Service.

**FINANCIAL STATISTICS OF THE STATE DEPARTMENTS  
OF HEALTH.**

The accompanying tabular statement showing the financial statistics of the various State departments of health, was compiled by Dr. C. St. Clair Drake, director of public health, State of Illinois, secretary of the Conference of State and Provincial Health Authorities of North America. It has been prepared by Dr. Drake from data presented by him at the Conference of State and Provincial Health Authorities held at Washington, D. C., May 24-25, 1920.

There are obvious difficulties involved in using the health appropriations for purposes of comparison. For example, because of the different fields of activity that are included in health work in the various States, and the consequent different uses to which the appropriations are put, strictly comparable data relative to the health appropriations would necessitate a very careful analysis. Also, it has been contended that, in computing rates for the State of New York, the population of New York City, over which the State authorities have no jurisdiction, should have been eliminated. Dr. Drake states that, although this contention is not without merit, such a rule would have to be followed in other States, and the population of Chicago eliminated in the Illinois computations, Boston from the figures for Massachusetts, etc., and that it is his opinion that the figures should stand as presented.

## FINANCIAL STATISTICS OF STATE DEPARTMENTS OF HEALTH.

Compiled Under the Direction of Dr. C. St. Clair Drake, Secretary, Conference of State and Provincial Health Authorities, December, 1920.

State.	Population.	Area (square miles).	Health appropriation.						Salary, executive officer.
			Total.	Rank.	Amount.	Per capita.	Per square mile.	Total.	
Alabama.....	2,347,295	51,279	\$140,000	16	6.0	25	\$2,73	20	\$2,13
Arizona.....	1,332,273	113,020	21,300	40	6.5	21	1.19	43	1,000
Arkansas.....	1,750,965	52,325	40,935	31	3.5	35	1.17	34	3,00
California.....	3,426,536	156,692	307,200	7	8.9	14	1.97	24	4,500
Colorado.....	939,376	103,658	48,250	33	5.1	27	.47	37	2,000
Connecticut.....	1,380,385	4,820	177,300	13	12.9	9	36.80	4	4,000
Delaware.....	223,063	1,965	22,000	39	9.9	11	11.20	6	3,000
District of Columbia.....	437,571	1,561	153,000	14	16.6	6	2.83	19	3,000
Florida.....	966,296	56,861	115,000	21	4.0	32	1.96	25	1,73
Georgia.....	2,894,083	58,725	26,650	37	6.7	20	.35	39	3,000
Idaho.....	431,826	83,779	132,173	6	5.1	28	5.93	12	6,000
Illinois.....	6,483,098	56,002	35,885	130,000	20	4.4	30	3.62	93
Indiana.....	2,930,644	35,885	30,630	27	7.7	30	1.02	3,000	10,75
Iowa.....	2,003,630	55,386	77,588	32	3.2	39	1.40	29	8,35
Kansas.....	1,768,257	81	111,885	22	6.3	30	1.37	30	1,25
Kentucky.....	2,116,613	40,181	135,000	18	5.6	26	3.36	16	2,20
Louisiana.....	1,797,798	45,409	60,000	32	3.3	37	1.32	32	2,00
Maine.....	768,014	26,885	67,929	30	8.8	15	2.27	21	4,600
Maryland.....	1,449,610	9,941	179,711	12	12.4	10	18.05	5	3,750
Massachusetts.....	3,852,336	8,039	1,513,174	2	39.2	1	188.00	1	2,50
Michigan.....	3,667,222	57,480	230,137	10	6.3	24	4.01	14	4,500
Minnesota.....	2,386,371	80,838	97,037	23	4.1	31	1.20	33	1,23
Mississippi.....	1,789,384	46,362	138,494	17	7.7	18	2.99	18	1,88
Missouri.....	3,403,547	65,727	20,000	43	2.9	29	.71	20	5,57
Montana.....	547,593	145,776	131,077	19	21.9	3	.90	35	2,400
Nebraska.....	1,299,502	76,808	103,888	23	8.0	16	1.35	31	5,000
Nevada.....	77,407	106,821	28,000	38	6.3	23	3.10	17	3,000
New Hampshire.....	443,083	9,031	292,000	8	9.3	12	38.70	3	6,77
New Jersey.....	3,155,374	5,314	13,000	45	3.6	33	.11	46	4,00
New Mexico.....	360,247	122,580	10,000	3	2.01	13	.00	8,000	8,44
New York.....	10,389,144	47,654	930,550	9,2	9.2	23	.77	8,000	10,73

May 20, 1921.

North Carolina.....	2,536,466	48,740	344,838	5	13.5	5	7.08	10	5,000	1.96
North Dakota.....	645,730	70,183	11,634	48	1.8	45	1.17	45	1,200	1.71
Ohio.....	5,759,388	40,740	197,540	11	3.4	36	4.85	13	6,000	1.04
Oklahoma.....	2,027,764	60,114	115,300	15	7.1	19	2.10	22	3,600	1.77
Oregon.....	95,607	17,000	44	2.1	43	18	44	44	4,000	5.65
Pennsylvania.....	788,389	2,682,664	1	30.8	2	5.98	11	10,000	1.15	4.18
Rhode Island.....	8,720,159	44,832	2,686,666	34	7.9	17	46.00	2	3,500	5.80
Rhode Island.....	604,379	1,167	245,366	9	14.0	7	7.72	8	4,000	2.38
South Carolina.....	1,083,662	30,346	21,000	41	3.3	38	1.27	41	2,000	3.15
South Dakota.....	630,830	76,908	72,908	28	3.1	40	1.75	27	3,500	1.50
Tennessee.....	2,337,459	41,687	97,700	24	2.1	44	1.37	38	3,000	.64
Texas.....	4,061,027	202,398	20,500	42	4.6	29	1.25	42	4,000	8.90
Utah.....	449,446	82,184	70,000	29	19.8	4	7.68	9	3,500	4.87
Vermont.....	352,421	9,124	40,262	282,289	4	16.6	5	9.50	9.95	38.35
Virginia.....	2,306,361	40,262	282,289	33,157	36	2.5	42	9.30	4,200	1.82
Washington.....	1,555,316	60,536	23,022	44,940	35	3.1	1.87	36	5,000	3.68
West Virginia.....	1,465,610	55,256	91,450	26	3.6	34	1.71	26	4,800	7.48
Wisconsin.....	2,631,839	194,402	97,184	.....	.....	.....	.....	28	6,000	2.28
Wyoming.....	.....	.....	.....	.....	.....	.....	.....	(1)	.....	.....

\$10 per day.

FINANCIAL STATISTICS OF STATE DEPARTMENTS OF HEALTH—Continued.  
 Compiled Under the Direction of Dr. C. St. Clair Drake, Secretary, Conference of State and Provincial Health Authorities, December, 1920.

Salaries—Chiefs of divisions.

State.	Engineering.				Communicable diseases.				Laboratory.				Vital statistics.				Child hygiene.				Venereal disease.			
	Total.	Per 1,000 population.	Per 100 square miles.	Total.	Per 1,000 population.	Per 100 square miles.	Total.	Per 1,000 population.	Per 100 square miles.	Total.	Per 1,000 population.	Per 100 square miles.	Total.	Per 1,000 population.	Per 100 square miles.	Total.	Per 1,000 population.	Per 100 square miles.	Total.	Per 1,000 population.	Per 100 square miles.	Total.	Per 1,000 population.	Per 100 square miles.
Alabama.....	\$2,652	\$1.13	\$5.17	\$3,000	\$1.28	\$5.85	\$3,000	\$1.28	\$5.85	\$3,300	\$1.41	\$6.44	\$2,400	\$1.02	\$4.68	\$3,000	\$1.28	\$5.85	\$3,500	\$1.43	\$4.50	\$1.32	\$4.50	\$2.86
Arizona.....	4,000	1.17	2.56	4,000	1.17	2.56	.....	.....	.....	5,100	1.20	4.68	6,600	1.80	5.33	1,500	1.50	5.33	.....	.....	.....	.....	.....	.....
Arkansas.....	3,000	1.71	5.72	.....	.....	.....	.....	.....	.....	2,400	.70	1.54	3,000	1.63	2.30	3,000	3.20	3.20	3,200	3.20	3.20	3,200	3.20	3.20
California.....	2,500	1.81	51.80	3,000	2.17	62.20	2,500	1.81	51.80	1,000	.73	20.70	2,400	1.74	49.80	2,100	9.40	107.00	3,000	3.12	5.47	3,000	3.12	5.47
Connecticut.....	3,000	3.12	5.47	.....	.....	.....	3,000	3.12	5.47	2,750	2.86	5.02	2,700	2.81	4.92	2,100	9.40	107.00	3,000	3.12	5.47	3,000	3.12	5.47
Delaware.....	3,000	1.04	5.11	.....	.....	.....	3,000	1.21	5.96	3,500	1.21	5.96	4,000	1.28	6.25	7,15	4.00	4.00	4,000	1.38	6.82	4,000	1.38	6.82
Florida.....	4,000	.62	7.15	3,000	.55	6.42	3,600	.55	6.42	2,400	.37	4.28	4,000	.61	5.01	1,800	.61	5.01	1,800	.61	5.01	1,800	.61	5.01
Georgia.....	4,000	1.04	4.30	.....	.....	.....	3,500	1.19	6.75	1,800	.61	5.01	4,000	.61	5.01	1,800	.61	5.01	1,800	.61	5.01	1,800	.61	5.01
Illinois.....	2,500	1.04	4.30	.....	.....	.....	3,300	1.36	4.04	.....	.....	.....	2,400	1.36	2.94	2,500	1.41	3.06	2,500	1.41	3.06	2,500	1.41	3.06
Indiana.....	2,500	1.04	4.30	.....	.....	.....	3,000	1.24	7.46	2,700	1.24	7.46	2,400	1.24	7.46	2,400	1.00	5.98	2,600	1.00	5.98	2,600	1.00	5.98
Iowa.....	3,000	1.67	6.61	.....	.....	.....	3,000	1.24	7.46	2,700	1.24	7.46	2,400	1.24	7.46	2,400	1.00	5.98	2,600	1.00	5.98	2,600	1.00	5.98
Kansas.....	3,000	2.34	6.02	2,300	2.90	7.70	2,300	2.90	7.70	2,700	3.32	9.02	2,400	1.66	24.16	2,000	1.04	4.18	2,000	1.04	4.18	2,000	1.04	4.18
Louisiana.....	3,000	2.07	30.20	3,000	2.07	30.20	3,000	2.07	30.20	2,400	1.04	49.80	2,400	1.04	49.80	2,400	.66	5.22	2,500	.66	5.22	2,500	.66	5.22
Maine.....	6,000	1.56	7.60	4,500	1.17	56.00	4,000	1.04	49.80	4,000	.82	5.22	2,700	1.51	6.83	2,700	1.51	6.83	2,700	1.51	6.83	2,700	1.51	6.83
Massachusetts.....	6,000	1.82	5.22	3,000	1.82	5.22	3,000	1.82	5.22	3,000	.82	5.22	2,700	1.51	6.83	2,700	1.51	6.83	2,700	1.51	6.83	2,700	1.51	6.83
Michigan.....	4,025	1.68	4.69	4,025	1.68	4.69	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Minnesota.....	2,400	4.38	6.65	4,200	7.67	2.80	3,000	5.47	2.06	2,400	5.47	2.06	2,400	5.47	2.06	2,400	5.47	2.06	2,400	5.47	2.06	2,400	5.47	2.06
Missouri.....	3,000	6.77	33.20	3,000	6.77	33.20	2,400	6.77	33.20	2,400	1.86	22.15	2,400	1.86	22.15	2,400	1.86	22.15	2,400	1.86	22.15	2,400	1.86	22.15
Montana.....	3,600	1.14	47.80	3,000	.96	39.94	4,000	1.66	4.90	2,400	1.28	53.25	3,000	.96	39.94	3,000	.96	39.94	3,000	.96	39.94	3,000	.96	39.94
Nebraska.....	2,400	6.67	1.86	2,400	6.67	1.86	2,400	6.67	1.86	2,400	6.67	1.86	2,400	6.67	1.86	2,400	6.67	1.86	2,400	6.67	1.86	2,400	6.67	1.86
New Hampshire.....	3,000	6.77	33.20	3,000	6.77	33.20	2,400	6.77	33.20	2,400	1.86	22.15	2,400	1.86	22.15	2,400	1.86	22.15	2,400	1.86	22.15	2,400	1.86	22.15
New Jersey.....	3,600	1.14	47.80	3,000	.96	39.94	4,000	1.66	4.90	2,400	1.28	53.25	3,000	.96	39.94	3,000	.96	39.94	3,000	.96	39.94	3,000	.96	39.94
New Mexico.....	2,400	6.67	1.86	2,400	6.67	1.86	2,400	6.67	1.86	2,400	6.67	1.86	2,400	6.67	1.86	2,400	6.67	1.86	2,400	6.67	1.86	2,400	6.67	1.86
New York.....	5,300	.33	11.33	4,000	.39	8.40	7,000	.06	14.08	4,200	.41	8.92	4,500	.43	9.45	4,000	.39	8.40	4,000	.39	8.40	4,000	.39	8.40

North Carolina.....	3,000	1.18	6.15	4,000	1.57	8.21	2,500	.98	5.13	2,500	.98	5.13	3,000	1.18	6.15
North Dakota.....	2,200	3.41	3.14	3,000	.57	8.13	3,000	.52	7.39	3,000	.52	7.39	3,000	4.65	4.27
Ohio.....	4,000	.70	9.82	3,300	2.80	2.80	1,800	.80	2.30	1,800	.80	2.30	1,800	.82	7.39
Oklahoma.....	2,000	.90	2.80	3,000	1.46	8.92	3,000	3.79	3.14	1,800	2.27	1.88	3,000	1.40	4.34
Oregon.....	6,000	.60	13.40	4,000	4,000	4,000	4,000	4.16	8.92	4,000	4.16	8.92	3,000	3.35	2.31
Pennsylvania.....	4,000	6.63	375.00	4,000	6.63	375.00	4,000	4.97	281.00	3,000	4.97	281.00	4,000	4.46	8.92
Rhode Island.....	2,400	1.43	7.88	4,000	6.63	375.00	3,000	1.78	9.80	3,000	1.78	9.80	3,000	4.97	281.00
South Carolina.....	2,750	.50	1.05	3,000	1.05	1.05	2,100	.90	5.01	3,000	1.20	7.20	3,000	1.20	7.20
South Dakota.....	3,000	1.52	8.68	3,600	2.65	5.39	3,000	2.21	4.40	2,750	1.19	6.83	2,500	3.68	21.90
Tennessee.....	3,000	2.21	4.49	3,600	2.65	5.39	3,000	2.21	4.40	2,750	1.19	6.83	2,500	1.08	6.20
Texas.....	2,700	1.85	11.22	2,700	1.85	11.22	2,700	1.85	11.22	2,400	1.61	9.98	1,800	1.23	7.99
Utah.....	4,000	1.52	7.24	3,000	1.14	5.43	3,250	1.23	5.88	3,000	1.14	5.43	2,500	.95	4.53
Vermont.....	3,000	1.52	8.68	3,600	2.65	5.39	3,000	2.21	4.40	2,750	1.19	6.83	2,500	1.08	6.20
Virginia.....	2,700	1.85	11.22	2,700	1.85	11.22	2,700	1.85	11.22	2,400	1.61	9.98	1,800	1.23	7.99
West Virginia.....	2,700	1.85	11.22	2,700	1.85	11.22	2,700	1.85	11.22	2,400	1.61	9.98	1,800	1.23	7.99
Wisconsin.....	3,000	1.52	7.24	3,000	1.14	5.43	3,250	1.23	5.88	3,000	1.14	5.43	2,500	.95	4.53

\* \$10 per day.

\* Part time.

\* Paid by private organization.

\* Reduced from \$6,000 in July, 1920.

## DIVISION OF VENEREAL DISEASES.

## Progress in Securing Data on Venereal Diseases.

The following memorandum was recently sent out to State venereal disease control officers by Asst. Surg. Gen. Pierce, of the Division of Venereal Diseases:

It is believed that the following data will be of interest to all State venereal disease control officers, as it shows progress in accumulating data in regard to venereal diseases:

During the quarter ended March 31, 1921, reports were received by the division of venereal diseases, Public Health Service, from 487 sources. Of this number, 419 were from clinics and 7 from detention homes and State hospitals for the insane that received State aid. The other 61 reports were from State hospitals for the insane, penal institutions, general hospitals, and some clinics receiving no aid from the State in which they are located.

Sixteen clinics receiving State aid made no report. In addition to 12 regular clinics in one State, there are 70 "cooperative clinics" for which the State venereal disease control officer sends in a combined report, counted in the record of 487 sources as one. These "cooperative clinics" are private physicians who treat indigent cases free in return for having a minimum of equipment and all drugs furnished by the State. These physicians are required to take special training in one of the State clinics before being designated as a "cooperative clinic."

One other State has three "treatment centers" conducted on a similar basis, but these centers are not at present reporting to the service.

There are two traveling clinics, one in Florida and one in Michigan.

During the quarter, 11 clinics that were doing very little work were closed.

Fourteen new clinics were established, 9 of which have begun reporting.

The Public Health Service hopes by the 30th of June to be receiving reports from more than five hundred sources. Will you please see that every clinic in your State reports promptly?

**Report of the Division of Venereal Diseases for January, February, and March, 1921.**

The accompanying table was compiled from the records of 487 clinics, hospitals, and institutions which have submitted reports to the United States Public Health Service. Of this number 426 are receiving some financial assistance from the State or Federal Government.

*Venereal-disease reports for January, February, and March, 1921—Number of cases reported by the State boards of health, number of admissions to the venereal-disease clinics operating under joint control of the United States Public Health Service and State boards of health, and number of treatments of arsphenamine administered.*

State.	Cases reported.				Admissions to clinics.								Ars- phen- a- mine treat- ments ad- minis- tered.	
	Total cases.	Syph- ilis.	Gon- or- rhea.	Chan- croid.	Total admissions.		Syphilis.		Gonor- rhea.		Chancroid.			
					Male.	Fe- male.	Male.	Fe- male.	Male.	Fe- male.	Male.	Fe- male.		
Alabama.....	1,290	601	617	72	1,830	706	1,005	476	750	220	75	10	8,026	
Arizona <sup>1</sup> .....														
Arkansas.....	2,634	1,300	1,257	77	546	208	252	105	275	103	19		1,819	
California.....	2,199	1,041	1,158		739	393	351	258	374	135	14		3,886	
Colorado.....	713	270	391	52	289	135	128	85	137	48	24		1,238	
Connecticut.....	1,034	706	328		277	103	122	72	152	34	3		1,379	
Delaware.....	144	42	87	15	54	15	26	11	27	4	1		164	
Florida.....	1,738	990	663	85	851	347	535	238	270	101	46		3,991	
Georgia.....	2,062	820	1,098	144	885	416	465	300	367	108	53	8	8,398	
Idaho <sup>1</sup> .....														
Illinois.....	6,664	2,315	4,083	266	1,240	662	392	352	761	304	87	6	5,684	
Indiana.....	1,296	606	662	28	948	324	347	161	562	161	39	2	5,077	
Iowa <sup>1</sup> .....	634	227	309	8	224	97	88	45	107	48	29	4	1,323	
Kansas.....	781	371	410		251	194	154	97	96	67	1		1,895	
Kentucky.....	6,649	4,011	2,599	39	751	419	394	241	345	175	12	3	4,219	
Louisiana.....	2,675	1,140	1,233	302	830	342	434	272	330	68	66	2	3,225	
Maine.....	381	147	230	4	129	52	88	35	41	17			454	
Maryland.....	1,065	451	564	50	667	458	189	152	413	301	65	5	2,510	
Massachusetts.....	2,145	717	1,428		1,142	674	600	373	542	301			12,377	
Michigan.....	4,943	2,294	2,506	53	1,142	666	519	469	619	196	4	1	4,562	
Minnesota.....	3,296	1,562	1,639	95	191	185	102	98	89	87			3,290	
Mississippi.....	1,848	1,245	540	63	805	600	578	538	184	53	44	9	5,908	
Missouri.....	2,597	1,240	1,229	128	1,709	672	821	410	770	252	118	10	4,095	
Montana.....	283	80	203		10	8	5	5	4	3	1		46	
Nebraska <sup>1</sup> .....	1,113	363	687	63	156	70	59	38	87	31	10	1	853	
New Hampshire.....	227	75	152		39	39	19	26	20	13			704	
New Jersey.....	1,706	985	691	27	761	202	320	149	429	53	12		2,892	
New York.....	7,101	5,505	1,596		1,686	424	834	335	802	89	50		10,515	
New Mexico.....	121	24	97		1	13	1	7		6			12	
North Carolina.....	1,675	667	934	74	313	127	164	110	135	17	14		1,672	
North Dakota.....	211	55	153	3	16	7	10	9	6				82	
Ohio.....	2,383	1,330	937	66	1,934	740	938	523	945	214	51	3	9,248	
Oklahoma.....	1,627	735	761	108	497	341	270	181	189	150	38	10	4,639	
Oregon.....	315	58	252	5	79	45	23	23	51	22	2		245	
Pennsylvania.....	14,503	10,182	4,201	123	1,288	770	728	519	537	249	23	2	9,609	
Rhode Island.....	2,387	1,787	598	2	141	72	78	53	62	19	1		1,802	
South Carolina.....	2,273	1,034	1,068	141	1,525	461	691	265	703	176	131	20	6,664	
South Dakota.....	171	58	112	1	10	1	4	1	6				36	
Tennessee.....	1,359	760	544	55	849	475	448	342	317	131	84	2	3,825	
Texas.....	12,070	5,556	5,604	910	1,038	643	688	339	312	304	38		4,458	
Utah.....	282	77	200	5	75	49	30	13	41	36	4		275	
Vermont.....	173	91	70		23	16	14	11	9	5			180	
Virginia.....	1,586	851	661	74	789	498	466	323	250	166	64	9	4,773	
Washington.....	962	252	681	29	148	120	57	56	91	64			1,697	
West Virginia.....	2,481	924	1,453	101	84	54	72	32	12	22			598	
Wisconsin.....	673	113	558	2	119	92	42	51	75	41	2		1,105	
Wyoming.....	324	89	231	4	5	7	2	4	3	3			29	
Total.....	102,797	53,850	45,670	3,277	27,087	12,954	13,550	8,204	12,312	4,636	1,225	114	149,372	

<sup>1</sup> No report received.<sup>2</sup> 2 months only.

## CIVIL SERVICE EXAMINATIONS.

### PUBLIC HEALTH SERVICE NEEDS RECONSTRUCTION AIDES AND ROENTGENOLOGISTS.

The United States Civil Service Commission announces open competitive examinations for reconstruction aides and roentgenologists, to fill vacancies in the Public Health Service throughout the

United States. All citizens of the United States who meet the requirements, both men and women, may enter these examinations; appointing officers have the legal right, however, to specify sex desired in requesting certification of eligibles. For present vacancies, women are desired as reconstruction aides.

#### RECONSTRUCTION AIDES.

The register of eligibles will be divided into two classes: (a) Those qualified in physiotherapy; (b) those qualified in occupational therapy.

*Physiotherapy.*—The duties of appointees will consist of administering treatment of physiotherapy in its several branches—massage, electrotherapy, hydrotherapy, mechanotherapy, thermotherapy; active, passive, restive, and assistive exercises and remedial gymnastics; keeping daily record of the work and the progress of patients; and making reports of the activities of the work.

Applicants must be under seventy years of age. They must have graduated from a four years' high-school course or be qualified for admission to a college or university of recognized standing, and, in addition, must have had some course of study and practical experience in physiotherapy.

*Occupational therapy.*—The duties of appointees in occupational therapy will consist of giving instruction in the arts and crafts, or in any one or more of the academic or commercial subjects considered under the subject of occupational therapy; keeping a daily record of the work and progress of the patients; and making reports.

The age and educational requirements of applicants in this class are the same as those for aides in physiotherapy, except that the additional requirements in education and experience relate to arts, crafts, and commercial subjects.

Appointments as reconstruction aides will be made at salaries of \$720 to \$960 a year, with quarters, subsistence, and laundry, where these are available, and the increase granted by Congress of \$20 a month.

It is expected that several hundred appointments will be made to these positions.

Applications will be rated as received until further notice.

#### ROENTGENOLOGISTS.

Vacancies in the Public Health Service throughout the United States, in the position of roentgenologist at \$200 to \$250 a month, associate roentgenologist at \$130 to \$180 a month, assistant roentgenologist at \$90 to \$130 a month, and junior roentgenologist at \$70 to \$90 a month, will be filled from these examinations. In addition to the salaries, appointees will be allowed quarters and subsistence and laundry when these are available; and appointees at annual compensation of \$2,500 or less, whose services are satisfactory, may be allowed the increase granted by Congress of \$20 a month. The entrance salary within the range stated will depend upon the qualifications of the appointee as shown in the examination and the duty to which assigned.

*Duties.*—The duties of a roentgenologist will be those of general roentgenologic practice, including X-ray physics, technology, photography interpretation and localization. Associate roentgenologists must be competent in X-ray photography (including developing and solution preparation) and posturing and trained in the ability to install, maintain, and repair X-ray apparatus; they must also be qualified by experience for supervisory duty in a large laboratory, or as the head of a smaller laboratory. Assistant roentgenologists' duties will require a similar training to those of an associate, but will be under supervision. Junior roentgenologists' duties require similar qualifications to those of assistant, but in lesser degree.

May 20, 1921.

*Subjects and weights.*—Competitors will not be required to report for examination at any place, but will be rated on the following subjects, which will have the relative weights indicated:

Subjects:	Weights.
1. General and technical education and training.....	30
2. Experience and fitness.....	70
Total.....	100

*Basis of ratings.*—The ratings will be based upon competitors' sworn statements in their applications and upon corroborative evidence.

*Requirements for eligibility.*—The minimum requirements for eligibility for appointment to these positions are as follows:

For the position of roentgenologist applicants must have been graduated from a recognized medical college with the degree of M. D., and have had at least three years' experience in the subjects mentioned in the above statement of duties of this position.

For the positions of junior, assistant, and associate roentgenologist applicants must have completed at least eight grades of common school or equivalent education and have received a certificate of proficiency from or establish equivalent schooling in a recognized hospital, medical college, or technical institution in X ray, physics, and technology. In addition, applicants for junior must show one year's experience in X-ray activity; applicants for assistant must show three years of such experience; and applicants for associate must show five years of such experience.

*Age and physical condition.*—Applicants must have reached their eighteenth but not their seventieth birthday on the date of making oath to the application, and must be in good physical condition. In view of the retirement act, at the request of the appointing officer certification will not be made of eligibles who have reached their fifty-fifth birthday.

On account of the needs of the service, papers will be rated as received and certification made as the needs of the service require. In the absence of further notice, applications for these examinations will be received by the commission at Washington, D. C., until the hour of closing business on August 1, 1921. If sufficient eligibles are obtained the receipt of applications may be closed before that date, of which due notice will be given.

Applicants for any of the above positions should at once apply for Form 1312, stating the title of the examination desired, to the Civil Service Commission, Washington, D. C.; the secretary of the United States Civil Service Board, Customhouse, Boston, Mass., New York, N. Y., New Orleans, La., Honolulu, Hawaii; Post Office, Philadelphia, Pa., Atlanta, Ga., Cincinnati, Ohio, Chicago, Ill., St. Paul, Minn., Seattle, Wash., San Francisco, Calif., Denver, Colo.; Old Customhouse, St. Louis, Mo.; Administration Building, Balboa Heights, Canal Zone; or to the chairman of the Porto Rican Civil Service Commission, San Juan, P. R.

## DEATHS DURING WEEK ENDED MAY 7, 1921.

*Summary of information received by telegraph from industrial insurance companies for week ended May 7, 1921, and corresponding week, 1920. (From the "Weekly Health Index," May 10, 1921, issued by the Bureau of the Census, Department of Commerce.)*

	Week ended May 7, 1921.	Corresponding week, 1920.
Policies in force.....	46,215,876	43,157,854
Number of death claims.....	8,279	8,403
Death claims per 1,000 policies in force.....	9.3	10.2

*Deaths from all causes in certain large cities of the United States during the week ended May 7, 1921, infant mortality, annual death rate, and comparison with corresponding week of preceding years. (From the "Weekly Health Index," May 10, 1921, issued by the Bureau of the Census, Department of Commerce.)*

City.	Estimated population, July 1, 1921.	Week ended May 7, 1921.		Average annual death rate per 1,000. <sup>1</sup>	Deaths under 1 year.		Infant mortality rate, week ended May 7, 1921. <sup>2</sup>
		Total deaths.	Death rate. <sup>1</sup>		Week ended May 7, 1921.	Previous year or years. <sup>3</sup>	
Akron, Ohio.....	229,195	32	7.3	12.1	4	4.8	38
Albany, N. Y.....	115,071	32	14.5	C 13.5	4	C 3	90
Atlanta, Ga.....	207,473	53	13.3	C 19.6	8	C 11	90
Baltimore, Md.....	751,537	195	13.5	A 18.1	32	A 32	90
Birmingham, Ala.....	186,133	58	16.2	A 16.2	14	A 7	-----
Boston, Mass.....	757,634	209	14.4	A 18.2	31	A 38	84
Bridgeport, Conn.....	149,967	28	9.7	A 16.4	7	A 6	88
Buffalo, N. Y.....	519,608	131	13.1	C 14.1	10	C 23	39
Cambridge, Mass.....	110,444	26	12.3	A 15.1	4	A 5	72
Camden, N. J.....	119,672	29	12.6	-----	5	-----	-----
Chicago, Ill.....	2,780,655	574	10.8	A 15.9	92	A 137	-----
Cincinnati, Ohio.....	403,418	106	13.7	C 19.2	11	C 22	73
Cleveland, Ohio.....	831,138	148	9.3	C 15.1	40	C 29	107
Columbus, Ohio.....	245,358	56	11.9	C 13.9	6	C 11	70
Dallas, Tex.....	165,282	33	10.4	A 13.9	6	A 3	-----
Dayton, Ohio.....	158,119	32	10.6	C 11.6	4	C 3	66
Denver, Colo.....	263,152	57	11.3	A 12.8	9	-----	-----
Detroit, Mich.....	1,070,450	218	10.6	-----	56	-----	106
Fall River, Mass.....	120,668	32	13.8	C 17.3	9	C 8	135
Grand Rapids, Mich.....	141,197	29	7.4	C 14.8	0	C 6	0
Houston, Tex.....	144,340	23	8.3	-----	3	-----	-----
Indianapolis, Ind.....	325,215	93	14.9	C 22.0	13	C 18	101
Jersey City, N. J.....	302,788	80	13.8	C 14.2	11	C 12	-----
Kansas City, Kans.....	103,908	27	13.5	-----	4	-----	95
Kansas City, Mo.....	336,157	89	13.8	C 16.8	11	C 9	-----
Los Angeles, Calif.....	611,636	144	12.3	A 13.2	11	A 12	52
Louisville, Ky.....	236,083	52	11.5	C 14.9	4	C 5	46
Lowell, Mass.....	113,757	29	13.3	A 15.2	5	A 6	80
Milwaukee, Wis.....	468,386	81	9.0	A 14.7	15	A 29	73
Minneapolis, Minn.....	392,815	83	11.0	C 14.3	6	C 10	34
Nashville, Tenn.....	119,536	27	11.8	C 21.9	3	C 6	-----
New Bedford, Mass.....	125,012	24	10.0	A 16.6	6	A 7	92
New Haven, Conn.....	167,007	45	14.1	C 19.1	8	C 11	95
New Orleans, La.....	394,657	120	15.9	A 18.3	15	A 18	-----
New York, N. Y.....	5,751,867	1,307	11.8	C 15.1	200	C 231	78
Newark, N. J.....	424,885	105	12.9	C 15.1	12	C 17	-----
Norfolk, Va.....	121,260	24	10.3	-----	3	-----	53
Oakland, Calif.....	226,472	23	5.3	A 10.4	4	A 4	51
Omaha, Nebr.....	197,066	60	15.9	-----	8	-----	-----
Paterson, N. J.....	137,463	27	10.2	-----	2	-----	-----
Philadelphia, Pa.....	1,866,212	420	11.7	16.4	43	4.85	52
Pittsburgh, Pa.....	596,413	187	16.3	C 22.5	25	C 34	89
Portland, Oreg.....	264,859	51	10.0	C 11.8	5	C 3	-----
Providence, R. I.....	239,645	52	11.3	C 14.2	7	C 14	-----
Richmond, Va.....	173,686	37	11.0	C 19.0	6	C 6	73
Rochester, N. Y.....	303,229	84	14.4	C 12.1	16	C 16	124
St. Louis, Mo.....	786,164	165	10.9	C 18.5	16	C 30	-----
St. Paul, Minn.....	237,781	51	11.2	C 16.2	4	C 8	40
Salt Lake City, Utah.....	121,595	27	11.6	A 10.8	4	-----	62
San Francisco, Calif.....	520,546	136	13.6	C 14.1	11	C 16	64
Seattle, Wash.....	327,227	74	11.8	A 10.4	5	A 8	42
Spokane, Wash.....	104,442	25	12.5	C 11.0	1	C 3	22
Springfield, Mass.....	135,877	34	13.0	-----	6	-----	90
Syracuse, N. Y.....	177,265	41	12.1	C 16.0	9	C 9	108
Toledo, Ohio.....	253,696	52	10.7	A 16.0	7	A 9	71
Trenton, N. J.....	122,760	25	10.6	A 20.1	3	-----	-----
Washington, D. C.....	454,026	109	12.5	A 16.1	12	A 10	70
Wilmington, Del.....	113,408	22	10.1	C 13.9	3	-----	-----
Worcester, Mass.....	184,972	50	14.1	C 16.7	5	C 4	54
Yonkers, N. Y.....	103,324	15	7.6	A 11.5	2	A 3	45
Youngstown, Ohio.....	139,432	33	12.3	-----	12	-----	152

<sup>1</sup> Annual rate per 1,000 population.

<sup>2</sup> "A" indicates data for the corresponding week of the years 1913 to 1917, inclusive. "C" indicates data for the corresponding week of the year 1918.

<sup>3</sup> Deaths under 1 year per 1,000 births—an annual rate based on deaths under 1 year for the week and estimated births for 1920. Cities left blank are not in the registration area for births.

<sup>4</sup> Data based on statistics of 1913, 1916, and 1917.

# PREVALENCE OF DISEASE.

*No health department, State or local, can effectively prevent or control disease without knowledge of when, where, and under what conditions cases are occurring.*

## UNITED STATES.

### CURRENT STATE SUMMARIES.

#### Telegraphic Reports for Week Ended May 14, 1921.

These reports are preliminary, and the figures are subject to change when later returns are received by the State health officers.

ALABAMA.		Cases.	CALIFORNIA—continued.		Cases.
Cerebrospinal meningitis.....		1	Smallpox:		
Chicken pox.....		10	Pomona.....		13
Diphtheria.....		20	Riverside.....		8
Hookworm.....		113	San Francisco.....		15
Malaria.....		10	Santa Paula.....		8
Mumps.....		28	Scattering.....		52
Pellagra.....		19	Typhoid fever.....		6
Scarlet fever.....		5	COLORADO.		
Smallpox:			(Exclusive of Denver.)		
Jefferson County.....		12	Cerebrospinal meningitis.....		1
Scattering.....		36	Chicken pox.....		27
Tuberculosis.....		22	Diphtheria.....		19
Typhoid fever.....		17	Measles.....		71
Whooping cough.....		12	Mumps.....		1
ARKANSAS.			Pneumonia.....		5
Chicken pox.....		18	Puerperal septicemia.....		1
Diphtheria.....		6	Scarlet fever.....		21
Influenza.....		6	Smallpox.....		39
Malaria.....		51	Tuberculosis.....		5
Measles.....		42	Typhoid fever.....		2
Pellagra.....		11	Whooping cough.....		2
Scarlet fever.....		6	CONNECTICUT.		
Smallpox.....		16	Chicken pox.....		62
Trachoma.....		1	Conjunctivitis (infectious).....		6
Tuberculosis.....		9	Diphtheria:		
Typhoid fever.....		8	Bridgeport.....		12
Whooping cough.....		17	New Haven.....		13
CALIFORNIA.			Scattering.....		23
Cerebrospinal meningitis:			German measles.....		2
Bakersfield.....		1	Influenza.....		3
Long Beach.....		1	Malaria.....		2
Influenza.....		28	Measles:		
Leprosy:			Hartford.....		22
Los Angeles.....		1	New Britain.....		8
San Francisco.....		1	Scattering.....		36
Lethargic encephalitis—San Francisco.....		1			
Poliomyelitis—Fresno.....		1			

CONNECTICUT—continued.		ILLINOIS—continued.	
	Cases.		Cases.
Mumps.....	88	Pneumonia.....	156
Pneumonia (lobar).....	34	Scarlet fever:	
Scarlet fever:		Chicago.....	117
Bridgeport.....	17	Decatur.....	14
New Haven.....	11	Galva.....	24
Waterbury.....	8	Peoria.....	12
Scattering.....	35	Rockford.....	10
Septic sore throat.....	1	Springfield.....	9
Trachoma.....	1	Scattering.....	99
Trichinosis.....	1	Smallpox:	
Tuberculosis (all forms).....	44	Tamaroa.....	10
Typhoid fever.....	6	Scattering.....	105
Whooping cough.....	67	Typhoid fever.....	10
DELAWARE.			
Chicken pox.....	2	INDIANA.	
Diphtheria.....	3	Diphtheria.....	39
Pneumonia.....	1	Scarlet fever.....	125
Scarlet fever:		Smallpox.....	114
Houston.....	1	IOWA.	
Wilmington.....	17	Diphtheria.....	21
Tuberculosis.....	8	Scarlet fever.....	85
Whooping cough.....	6	Smallpox.....	121
FLORIDA.			
Diphtheria.....	5	KANSAS.	
Malaria.....	13	Cerebrospinal meningitis.....	1
Paratyphoid fever.....	2	Chicken pox.....	146
Pneumonia.....	1	Diphtheria.....	49
Scarlet fever.....	2	German measles.....	2
Smallpox.....	45	Influenza.....	1
Typhoid fever.....	13	Measles.....	400
GEORGIA.			
Chicken pox.....	35	Mumps.....	16
Diphtheria.....	5	Pneumonia.....	17
Dysentery (amebic).....	6	Poliomyelitis.....	1
Dysentery (bacillary).....	13	Scarlet fever.....	72
Hookworm.....	12	Septic sore throat.....	1
Influenza.....	4	Smallpox.....	202
Malaria.....	39	Tuberculosis.....	32
Measles.....	52	Typhoid fever.....	7
Mumps.....	18	Whooping cough.....	78
Pneumonia.....	10	LOUISIANA.	
Scarlet fever.....	5	Diphtheria.....	5
Septic sore throat.....	2	Smallpox.....	59
Smallpox.....	34	Typhoid fever.....	22
Trachoma.....	1	MAINE.	
Tuberculosis (all forms).....	10	Chicken pox.....	20
Typhoid fever.....	18	Diphtheria.....	9
Whooping cough.....	14	German measles.....	8
ILLINOIS.			
Cerebrospinal meningitis:		Influenza.....	9
Chicago.....	2	Measles.....	85
East St. Louis.....	1	Mumps.....	15
Joliet.....	1	Pneumonia.....	2
Oak Park.....	1	Scarlet fever.....	12
Diphtheria:		Septic sore throat.....	2
Chicago.....	152	Smallpox.....	2
Scattering.....	71	Tuberculosis.....	7
Influenza.....	15	Typhoid fever.....	1
Lethargic encephalitis:		Whooping cough.....	27
Chicago.....	1	MARYLAND. <sup>1</sup>	
Lena.....	1	Chicken pox.....	56
Stephenson County—West Point Township.....	1	Diphtheria.....	27
ship.....	1	Dysentery.....	1
1 Week ended Friday.			

May 20, 1921.

## MARYLAND—continued.

	Cases.
Malaria.....	1
Measles.....	168
Mumps.....	47
Ophthalmia neonatorum.....	1
Paratyphoid fever.....	1
Pneumonia (all forms).....	65
Scarlet fever.....	39
Septic sore throat.....	1
Smallpox.....	15
Typhoid fever.....	3
Whooping cough.....	175

## MASSACHUSETTS.

Cerebrospinal meningitis.....	4
Chicken pox.....	135
Conjunctivitis (suppurative).....	10
Diphtheria.....	145
German measles.....	46
Influenza.....	14
Measles.....	657
Mumps.....	109
Ophthalmia neonatorum.....	16
Pneumonia (lobar).....	65
Poliomyelitis.....	2
Scarlet fever.....	141
Septic sore throat.....	1
Tetanus.....	1
Trachoma.....	6
Tuberculosis (all forms).....	162
Typhoid fever.....	38
Whooping cough.....	137

## MINNESOTA.

Cerebrospinal meningitis.....	3
Chicken pox.....	34
Diphtheria.....	64
Measles.....	65
Poliomyelitis.....	2
Scarlet fever.....	151
Smallpox.....	153
Tuberculosis.....	61
Typhoid fever.....	16
Whooping cough.....	6

## MISSISSIPPI.

Diphtheria.....	7
Poliomyelitis.....	2
Scarlet fever.....	5
Smallpox.....	38
Typhoid fever.....	12

## MONTANA.

Diphtheria.....	6
Rocky Mountain spotted or tick fever: Glasgow.....	2
Scarlet fever.....	3
Smallpox.....	50
Typhoid fever.....	1

## NEBRASKA.

Chicken pox.....	33
Diphtheria: Omaha.....	27
Scattering.....	3
Measles.....	55
Mumps.....	5

## NEBRASKA—continued.

	Cases.
Scarlet fever.....	43
Septic sore throat.....	1
Smallpox: Hardy.....	14
Lincoln.....	13
Omaha.....	10
Scattering.....	67
Tuberculosis.....	3
Typhoid fever.....	2
Whooping cough.....	9

## NEW JERSEY.

Chicken pox.....	143
Diphtheria.....	142
Influenza.....	12
Malaria.....	1
Measles.....	240
Pneumonia.....	89
Poliomyelitis.....	1
Scarlet fever.....	203
Smallpox.....	4
Trichinosis.....	1
Typhoid fever.....	4
Whooping cough.....	266

## NEW MEXICO.

Chicken pox.....	8
Conjunctivitis.....	2
Diphtheria.....	32
Influenza.....	14
Measles.....	84
Mumps.....	14
Pneumonia.....	8
Scarlet fever.....	5
Tuberculosis.....	7
Whooping cough.....	11

## NEW YORK.

(Exclusive of New York City.)

Cerebrospinal meningitis.....	1
Diphtheria.....	177
Influenza.....	39
Lethargic encephalitis.....	6
Measles.....	850
Paratyphoid fever.....	1
Pneumonia.....	171
Scarlet fever.....	258
Smallpox.....	13
Typhoid fever.....	21
Whooping cough.....	384

## NORTH CAROLINA.

Cerebrospinal meningitis.....	1
Chicken pox.....	83
Diphtheria.....	18
Measles.....	302
Poliomyelitis.....	1
Scarlet fever.....	19
Septic sore throat.....	6
Smallpox.....	60
Typhoid fever.....	29
Whooping cough.....	212

SOUTH DAKOTA.		WASHINGTON—continued.	
	Cases.		Cases.
Chicken pox.....	4	Mumps.....	15
Diphtheria.....	3	Pneumonia.....	4
Influenza.....	9	Scarlet fever.....	20
Measles.....	29	Smallpox.....	108
Pneumonia.....	8	Tuberculosis.....	8
Scarlet fever.....	14	Whooping cough.....	46
Smallpox.....	41		
Whooping cough.....	1		
TEXAS.		WEST VIRGINIA.	
Chicken pox.....	107	Diphtheria.....	5
Diphtheria.....	41	Measles.....	15
Measles.....	121	Scarlet fever.....	25
Mumps.....	22	Smallpox.....	10
Pellagra.....	8		
Smallpox.....	74		
Typhoid fever.....	20		
Whooping cough.....	27		
VERMONT.		WISCONSIN.	
Chicken pox.....	36	Milwaukee:	
Diphtheria.....	2	Chicken pox.....	36
Measles.....	57	Diphtheria.....	8
Mumps.....	9	German measles.....	2
Pneumonia.....	5	Measles.....	12
Scarlet fever.....	21	Scarlet fever.....	31
Smallpox.....	8	Smallpox.....	13
Typhoid fever.....	1	Tuberculosis.....	25
Whooping cough.....	35	Whooping cough.....	15
WASHINGTON.		Scattering:	
Chicken pox.....	58	Chicken pox.....	173
Diphtheria.....	26	Diphtheria.....	35
Measles.....	71	Influenza.....	25
		Measles.....	109
		Ophthalmia neonatorum.....	1
		Poliomyelitis.....	1
		Scarlet fever.....	124
		Smallpox.....	108
		Tuberculosis.....	14
		Typhoid fever.....	5
		Whooping cough.....	60

## District of Columbia and Kentucky Reports for Week Ended May 7, 1921.

DISTRICT OF COLUMBIA.		KENTUCKY—continued.	
	Cases.		Cases.
Chicken pox.....	13	Mumps.....	9
Diphtheria.....	7	Pneumonia.....	10
Measles.....	246	Scarlet fever:	
Scarlet fever.....	15	Jefferson County.....	14
Smallpox.....	1	Kenton County.....	21
Tuberculosis.....	34	Scattering.....	9
Typhoid fever.....	1	Septic sore throat.....	2
Whooping cough.....	32	Smallpox:	
		Harlan County.....	8
		Kenton County.....	45
		Lee County.....	28
		Muhlenberg County.....	13
		Pike County.....	13
		Scattering.....	26
		Tonsillitis.....	1
		Trachoma.....	14
		Tuberculosis:	
		Jefferson County.....	10
		Scattering.....	8
		Typhoid fever.....	11
		Whooping cough.....	18
Cerebrospinal meningitis—Jefferson County...	1		
Chicken pox.....	20		
Diphtheria:			
Jefferson County.....	18		
Kenton County.....	11		
Scattering.....	7		
German measles.....	1		
Lethargic encephalitis—Jefferson County.....	1		
Measles:			
Jefferson County.....	33		
Muhlenberg County.....	19		
Nicholas County.....	19		
Scattering.....	12		

May 20, 1921.

## SUMMARY OF CASES REPORTED MONTHLY BY STATES.

The following summary of monthly State reports is published weekly and covers only those States from which reports are received during the current week:

State.	Cerebrospinal meningitis.	Diphtheria.	Influenza.	Malaria.	Measles.	Pellagra.	Poliomyelitis.	Scarlet fever.	Smallpox.	Typhoid fever.
<b>1921.</b>										
Connecticut (April).....	11	197	47	4	533	.....	.....	396	1	14
Delaware (January).....	22	39	2	11	.....	.....	39	.....	.....	4
Delaware (February).....	1	11	27	.....	5	.....	.....	52	.....	1
Delaware (March).....	17	19	2	.....	2	1	86	.....	.....	4
Florida (April).....	2	23	6	51	108	3	.....	11	214	78
Massachusetts (April).....	18	678	124	5	3,292	3	3	1,017	7	44
Michigan (April).....	790	24	.....	.....	422	1	923	647	88	.....
Montana (March).....	1	29	15	.....	632	.....	1	65	151	11
Nebraska (April).....	3	68	26	.....	290	.....	.....	339	503	2
North Carolina (March).....	6	127	.....	2,732	.....	1	61	584	.....	26
Oklahoma (January).....	126	33	.....	163	.....	.....	49	193	.....	9
Oklahoma (February).....	1	61	5	.....	136	.....	1	30	208	136
Oklahoma (March).....	1	56	2	.....	171	.....	2	49	223	15
Wyoming (January).....	6	.....	.....	.....	16	.....	.....	25	48	1
Wyoming (March).....	1	10	.....	.....	205	.....	.....	72	69	17
Wyoming (April).....	.....	11	64	.....	13	.....	7	41	.....	1

## RECIPROCAL NOTIFICATION.

*Cases of communicable diseases referred during April, 1921, to other State health departments by Departments of Health of the States of Connecticut and Massachusetts.*

## Connecticut.

Disease and locality of notification.	Referred to health authority of—	Why referred.
Leprosy: Waterbury, Conn.....	State Department of Health, Albany, N. Y.	Patient, a native of Latvia, Russia, lived in New York City, 1904-1916, when first symptoms of leprosy appeared. Patient has lived in Waterbury since 1916.
Tuberculosis (pulmonary): South Norwalk, Conn.....	do.....	Patient went to Cairo, N. Y., for treatment.
Diphtheria: Granby, Conn.....	do.....	Patient had onset 3 days after leaving New York City.
Smallpox: Manchester, Conn.....	State Department of Health, Lansing, Mich.	Patient, a known contact with smallpox case in Detroit, became ill 2 weeks later in Providence and on arrival in Manchester, Conn., was quarantined.

## Massachusetts.

Typhoid fever: North Brookfield, Mass....	State Department of Health, Albany, N. Y.	Patient was ill at her home about 1 week prior to her visit to North Brookfield.
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PLAQUE.<sup>1</sup>

## HUMAN CASES OF PLAGUE REPORTED.

Place.	Period covered.	Cases.	Deaths.	Remarks.
California: San Benito County.....	1921. Feb. 7.....		1	

<sup>1</sup> A summary of the report received of the occurrence of plague and the finding of plague-infected rodents in the United States during 1920 was published in Public Health Reports, Jan. 7, 1921, p. 15.

## PLAQUE-INFECTED RODENTS.

Place.	Period covered.	Rodents found plague infected.
Florida: Pensacola.....	1921. Jan. 1 to Apr. 18..... Apr. 19 to May 14.....	5 0
Louisiana: New Orleans.....	Jan. 1 to Apr. 30..... May 1 to 14.....	36 0

## CITY REPORTS FOR WEEK ENDED APRIL 30, 1921.

## CEREBROSPINAL MENINGITIS.

The column headed "Median for previous years" gives the median number of cases reported during the corresponding weeks of the years 1915 to 1920, inclusive. In instances in which data for the full six years are incomplete, the median is that for the number of years for which information is available.

Place.	Median for previous years.	Week ended Apr. 30, 1921.		Place.	Median for previous years.	Week ended Apr. 30, 1921.	
		Cases.	Deaths.			Cases.	Deaths.
California:				New Jersey:			
Los Angeles.....	0	1	1	Garfield.....		1	.....
Oakland.....	0	1	1	New York:			
Sacramento.....	0	1	1	New York.....	6	4	4
San Diego.....	0			North Carolina:			
San Francisco.....	1	1	1	Winston-Salem.....	0	1	.....
Connecticut:				Ohio:			
Hartford.....	0	1	1	Dayton.....	0	1	.....
Illinois:				Youngstown.....	0	1	.....
Chicago.....	3	3	1	Zanesville.....	0		1
East Chicago.....	0		1	Rhode Island:			
Louisiana:				Newport.....	0	1	.....
Monroe.....	1	1	1	Texas:			
Maine:				Beaumont.....	0		1
Lewiston.....	1			Fort Worth.....	0	1	1
Maryland:				Virginia:			
Baltimore.....	1	1	1	Norfolk.....	0	1	.....
Massachusetts:				Petersburg.....	0		1
Boston.....	1	2	1	Richmond.....	0	1	.....
Michigan:				West Virginia:			
Detroit.....	1		1	Charleston.....	0	1	.....
Missouri:				Wheeling.....	0	1	.....
St. Louis.....	2		1	Wisconsin:			
Montana:				Racine.....	0		1
Butte.....	0		1	Superior.....	0		1
Nebraska:							
Omaha.....	0	1	1				

## DIPHTHERIA.

See p. 1145; also Telegraphic weekly reports from States, p. 1133, and Monthly summaries by States, p. 1137.

May 20, 1921.

## CITY REPORTS FOR WEEK ENDED APRIL 30, 1921—Continued.

## INFLUENZA.

Place.	Cases.	Deaths.	Place.	Cases.	Deaths.
Alabama:			Massachusetts—Continued.		
Birmingham.....		1	Fall River.....	1	1
California:			Haverhill.....	5	
Berkeley.....	3		New Bedford.....	1	
Long Beach.....		1	Saugus.....	3	
Los Angeles.....	3		Somerville.....	2	
Pasadena.....	2		Michigan:		
San Francisco.....	8		Detroit.....	1	
Connecticut:			Minnesota:		
Meriden.....	2		Minneapolis.....		1
Stonington.....	2	1	Missouri:		
District of Columbia:			Kansas City.....	4	2
Washington.....	1	1	St. Joseph.....	1	1
Georgia:			St. Louis.....	1	
Atlanta.....	3		New Jersey:		
Brunswick.....	3		Kearny.....	1	
Illinois:			Newark.....	11	1
Chicago.....	41	6	New York:		
Elgin.....		1	Cohoes.....	3	
Kansas:			New York.....	57	14
Kansas City.....	1		Ohio:		
Topeka.....	1		Cincinnati.....	4	1
Kentucky:			Columbus.....		1
Lexington.....			Oklahoma:		
Louisiana:			Oklahoma City.....		1
New Orleans.....			Pennsylvania:		
Maryland:			Philadelphia.....	2	4
Baltimore.....	6		Tennessee:		
Cumberland.....	1		Nashville.....		2
Massachusetts:			Texas:		
Boston.....	5	1	Dallas.....	2	
Cambridge.....	1	1	Virginia:		
Everett.....	1		Danville.....	1	

## LETHARGIC ENCEPHALITIS.

Connecticut:			Oregon:		
Bridgeport.....		2	Portland.....		1
Ohio:					
Norwood.....	1	1			
Piqua.....	1				

## MALARIA.

Alabama:			Massachusetts:		
Anniston.....	1		Boston.....	1	
California:			New Jersey:		
Berkeley.....	1		Trenton.....	1	
Georgia:			New York:		
Atlanta.....	2		New York.....	2	
Brunswick.....	11		Texas:		
Valdosta.....	10		Beaumont.....		1
			Dallas.....	6	

## MEASLES.

See p. 1145; also Telegraphic weekly reports from States, p. 1133, and Monthly summaries by States, p. 1137.

## CITY REPORTS FOR WEEK ENDED APRIL 30, 1921—Continued.

## PELLAGRA.

Place.	Cases.	Deaths.	Place.	Cases.	Deaths.
Alabama:			Massachusetts:		
Birmingham	1	1	Brockton	1	
Montgomery			North Carolina:		
California:			Charlotte		1
San Francisco	1		Greensboro		1
Georgia:			Texas:		
Brunswick	1	1	Dallas		1
Macon			Virginia:		
Maryland:			Richmond		1
Baltimore	1				

## PNEUMONIA (ALL FORMS).

Alabama:			Iowa:		
Anniston	2		Mason City		1
Birmingham		2	Kansas:		
Mobile	2		Kansas City	2	
Montgomery	1		Topeka		2
Arizona:			Wichita		2
Tucson	1		Kentucky:		
Arkansas:			Lexington		1
Little Rock	1		Louisville		6
California:			Louisiana:		
Alameda	3		New Orleans		5
Berkeley		1	Maine:		
Long Beach	22	10	Biddeford		1
Oakland		4	Lewiston		3
Pasadena	1		Portland		5
Sacramento	3	2	Maryland:		
San Diego	1		Baltimore	48	20
San Franeisco	5	3	Cumberland	2	
Stockton	2		Massachusetts:		
Colorado:			Amesbury		1
Denver	6		Attleboro	1	
Pueblo	2		Beverly		1
Connecticut:			Boston	28	22
Bridgeport		6	Brockton	5	
Bristol		2	Cambridge	3	2
Fairfield	1		Chelsea		
Hartford	5	2	Chicopee		1
Meriden		1	Clinton	1	
New Britain		1	Easthampton	2	1
New Haven		1	Fall River	7	6
New London	3		Haverhill	5	3
Norwalk		1	Holyoke		3
Norwich	1		Lowell		3
Stonington	2		Lynn	5	
Delaware:			Malden	5	
Wilmington		3	Melrose		1
District of Columbia:			Methuen		1
Washington		11	New Bedford		3
Georgia:			Newton	1	
Atlanta		5	North Adams		1
La Grange	2		Norwood	1	
Savannah		1	Pittsfield		3
Illinois:			Quincy	5	
Aurora	3	1	Salem		1
Bloomington		2	Saugus		1
Chicago	204	39	Somerville	3	1
Danville	3	1	Springfield	3	
East St. Louis		3	Taunton		1
Elgin		1	Winthrop	1	
Forest Park	3	1	Woburn		2
Jacksonville		1	Worcester		8
Kewanee		1	Michigan:		
Peoria		2	Ann Arbor		1
Rockford		1	Battle Creek	1	
Rock Island	5	1	Detroit	67	15
Springfield		1	Flint		2
Indiana:			Grand Rapids	3	1
East Chicago		1	Hamtramck		4
Gary		3	Ironwood	1	
Hammond		1	Ishpeming		1
Huntington		1	Marquette		1
Indianapolis		8	Pontiac	2	1
Mishawaka		1	Port Huron	3	
South Bend	1		Sault Ste. Marie		1
Terre Haute		1			

May 20, 1921.

## CITY REPORTS FOR WEEK ENDED APRIL 30, 1921—Continued.

## PNEUMONIA (ALL FORMS)—Continued.

Place.	Cases.	Deaths.	Place.	Cases.	Deaths.
Minnesota:			North Carolina:		
Austin.....	1		Charlotte.....		1
Duluth.....	2		Ohio:		
Minneapolis.....	8		Akron.....	1	
Rochester.....	1		Alliance.....		1
St. Paul.....	6		Barberton.....	1	
Missouri:			Chillicothe.....		1
Cape Girardeau.....	1		Cincinnati.....		7
Kansas City.....	9		Columbus.....		8
Springfield.....	2		Dayton.....	1	
Montana:			East Cleveland.....	1	
Anaconda.....	1		Hamilton.....	1	
Billings.....	2		Kenmore.....	1	
Butte.....	1		Lancaster.....		1
Nebraska:			Newark.....		2
Lincoln.....	5		Norwood.....		2
Omaha.....	3		Piqua.....	1	
Nevada:			Salem.....		1
Reno.....	1		Springfield.....		1
New Hampshire:			Toledo.....		1
Concord.....		1	Youngstown.....		4
New Jersey:			Zanesville.....		1
Bayonne.....	2		Oklahoma:		
Clifton.....	1		Oklahoma City.....		2
Elizabeth.....		3	Oregon:		
Englewood.....	1		Portland.....		3
Garfield.....	2		Pennsylvania:		
Gloucester City.....	1		Philadelphia.....	73	42
Hackensack.....		1	Rhode Island:		
Jersey City.....	6		Providence.....		3
Kearny.....	5	1	South Carolina:		
Newark.....	61	8	Charleston.....		3
Orange.....	2	1	South Dakota:		
Passaic.....	2		Sioux Falls.....		1
Paterson.....	2		Tennessee:		
Plainfield.....	2	1	Nashville.....		6
Summit.....	2		Texas:		
Trenton.....	9	1	Dallas.....	9	4
West Hoboken.....		1	El Paso.....		8
West New York.....	2		Fort Worth.....		4
West Orange.....	3		Waco.....		1
New York:			Utah:		
Albany.....	4		Salt Lake City.....		1
Binghamton.....			Vermont:		
Buffalo.....	18	16	Burlington.....		2
Cohoes.....	2	1	Rutland.....		2
Geneva.....		1	Virginia:		
Ithaca.....	3		Lynchburg.....		1
Jamesstown.....	2		Petersburg.....		1
Mount Vernon.....	2		Richmond.....		2
Newburgh.....	1		Roanoke.....	3	1
New York.....	293	132	West Virginia:		
Niagara Falls.....		4	Charleston.....		1
Rome.....	2		Huntington.....		4
Saratoga Springs.....	2	1	Wisconsin:		
Schenectady.....	6	1	Fond du Lac.....	2	
Syracuse.....		8	Green Bay.....		1
Troy.....		1	Oshkosh.....		2
Youkers.....	6		Superior.....		1

## POLIOMYELITIS (INFANTILE PARALYSIS).

The column headed "Median for previous years" gives the median number of cases reported during the corresponding weeks of the years 1915 to 1920, inclusive. In instances in which data for the full six years are incomplete, the median is that for the number of years for which information is available.

Place.	Median for pre- vious years.	Week ended Apr. 30, 1921.		Place.	Median for pre- vious years.	Week ended Apr. 30, 1921.	
		Cases.	Deaths.			Cases.	Deaths.
Colorado:				Massachusetts:			
Denver.....	0		1	Boston.....	0		1
Illinois:				Newton.....	0	1	
Decatur.....	0		1	New York:			
				New York.....	1	1	

## CITY REPORTS FOR WEEK ENDED APRIL 30, 1921—Continued.

## RABIES IN ANIMALS.

Place.	Cases.
Missouri: Kansas City.....	1

## SCARLET FEVER.

See p. 1145; also Telegraphic weekly reports from States, p. 1133, and Monthly summaries by States, p. 1137.

## SMALLPOX.

The column headed "Median for previous years" gives the median number of cases reported during the corresponding weeks of the years 1915 to 1920, inclusive. In instances in which data for the full six years are incomplete, the median is that for the number of years for which information is available.

Place.	Median for pre- vious years.	Week ended Apr. 30, 1921.		Place.	Median for pre- vious years.	Week ended Apr. 30, 1921.	
		Cases.	Deaths.			Cases.	Deaths.
Alabama:				Iowa:			
Birmingham.....	1	17	—	Burlington.....	0	1	—
Mobile.....	4	17	—	Cedar Rapids.....	3	3	—
Montgomery.....	2	7	—	Davenport.....	8	1	—
California:				Des Moines.....	7	3	—
Berkeley.....	0	7	—	Dubuque.....	1	1	—
Los Angeles.....	1	6	—	Muscatine.....	0	3	—
Oakland.....	1	9	—	Ottumwa.....	9	—	—
Pasadena.....	0	1	—	Sioux City.....	8	16	—
Riverside.....	0	2	—	Iowa:			
San Bernardino.....	0	2	—	Burlington.....	0	1	—
San Francisco.....	4	20	—	Cedar Rapids.....	3	3	—
Colorado:				Davenport.....	8	1	—
Denver.....	15	46	—	Des Moines.....	7	3	—
District of Columbia:				Dubuque.....	1	1	—
Washington.....	0	1	—	Muscatine.....	0	3	—
Florida:				Ottumwa.....	9	—	—
Miami.....	1	—	—	Sioux City.....	8	16	—
Georgia:				Kansas:			
Atlanta.....	13	17	—	Fort Scott.....	7	4	—
Lagrange.....	6	—	—	Hutchinson.....	0	9	—
Savannah.....	0	2	—	Kansas City.....	5	8	—
Valdosta.....	2	—	—	Lawrence.....	0	1	—
Idaho:				Parsons.....	2	2	—
Boise.....	0	1	—	Salina.....	—	2	—
Illinois:				Topeka.....	3	8	—
Aurora.....	0	1	—	Wichita.....	7	11	—
Bloomington.....	0	1	—	Iowa:			
Centralia.....	0	1	—	Burlington.....	0	1	—
Chicago.....	4	2	—	Cedar Rapids.....	3	3	—
East St. Louis.....	23	4	—	Davenport.....	8	1	—
Evanson.....	0	1	—	Des Moines.....	7	3	—
Forest Park.....	2	—	—	Dubuque.....	1	—	—
Freeport.....	0	2	—	Muscatine.....	0	3	—
Jacksonville.....	1	2	—	Ottumwa.....	9	—	—
Mattoon.....	0	3	—	Sioux City.....	8	16	—
Pekin.....	4	1	—	Kansas:			
Peoria.....	1	1	—	Fort Scott.....	7	4	—
Rockford.....	0	5	—	Hutchinson.....	0	9	—
Rock Island.....	2	1	—	Kansas City.....	5	8	—
Indiana:				Lawrence.....	0	1	—
Bloomington.....	0	4	—	Parsons.....	2	2	—
Crawfordsville.....	2	—	—	Salina.....	—	2	—
Elkhart.....	0	9	—	Topeka.....	3	8	—
Evansville.....	3	—	1	Wichita.....	7	11	—
Fort Wayne.....	3	2	—	Iowa:			
Gary.....	4	3	—	Burlington.....	0	1	—
Indianapolis.....	10	16	—	Cedar Rapids.....	3	3	—
Kokomo.....	1	1	—	Davenport.....	8	1	—
La Fayette.....	0	1	—	Des Moines.....	7	3	—
Marion.....	1	11	—	Dubuque.....	1	—	—
Richmond.....	0	1	—	Muscatine.....	0	3	—
Terre Haute.....	3	2	—	Ottumwa.....	9	—	—
				Sioux City.....	8	25	1
				St. Louis.....	9	19	—
				Montana:			
				Butte.....	1	1	—
				Great Falls.....	2	17	—
				Missoula.....	1	4	—

## CITY REPORTS FOR WEEK ENDED APRIL 30, 1921—Continued.

## SMALLPOX—Continued.

Place.	Median for pre- vious years.	Week ended Apr. 30, 1921.		Place.	Median for pre- vious years.	Week ended Apr. 30, 1921.	
		Cases.	Deaths.			Cases.	Deaths.
Nebraska:				South Dakota:			
Lincoln	5	7		Sioux Falls	2	2	
Omaha	21	27		Chattanooga	2	7	1
New Jersey:				Knoxville	2	1	
Jersey City	0	1		Nashville	1	1	
Trenton	1			Tennessee:			
West New York	1			Beaumont	0	2	
North Carolina:				Dallas	6	2	
Charlotte	0	1		El Paso	1	1	
Winston-Salem	4	11		Fort Worth	2	14	
North Dakota:				Galveston	0	1	
Fargo	0	2		Waco	5	5	
Grand Forks	0	2		Utah:			
Minot	4			Provo	0	2	
Ohio:				Salt Lake City	6	29	
Akron	2	1		Vermont:			
Canton	1	3		Rutland	0	3	
Cincinnati	1	2	1	Virginia:			
Columbus	0	6		Roanoke	3	1	
Hamilton	4			West Virginia:			
Lancaster	0	8		Bluefield	12	1	
Marion	4	3		Huntington	0	3	
Middletown	0	1		Wisconsin:			
Newark	0	9		Ashland	0	3	
Springfield	1	3		Beloit	0	3	
Toledo	4	45		Fond du Lac	1	1	
Oklahoma:				La Crosse	1	4	
Muskogee	3	4		Madison	2	4	
Oklahoma City	9	2		Marinette	0	9	
Tulsa	8	1		Milwaukee	3	16	
Oregon:				Oshkosh	3	4	
Portland	1	21		Racine	0	1	
Pennsylvania:				Sheboygan	0	5	
Pittsburgh	0	1		Superior	0	3	
Rhode Island:				Wyoming:			
Providence	0	1		Cheyenne	1	1	
South Carolina:							
Charleston	1	9					
Columbia	1	4					

## TETANUS.

Place.	Cases.	Deaths.	Place.	Cases.	Deaths.
California:			Massachusetts:		
Los Angeles	1	1	Boston	1	
Oakland		1	Pennsylvania:		
Georgia:			Philadelphia		1
Savannah		1	Texas:		
Illinois:			Waco		1
Jacksonville		2			
Maryland:					
Baltimore	1				

## TUBERCULOSIS.

See p. 1145, also Telegraphic weekly reports from States, p. 1133.

## CITY REPORTS FOR WEEK ENDED APRIL 30, 1921—Continued.

## TYPHOID FEVER.

The column headed "Median for previous years" gives the median number of cases reported during the corresponding weeks of the years 1915 to 1920, inclusive. In instances in which data for the full six years are incomplete, the median is that for the number of years for which information is available.

Place.	Median for pre- vious years.	Week ended Apr. 30, 1921.		Place.	Median for pre- vious years.	Week ended Apr. 30, 1921.	
		Cases.	Deaths.			Cases.	Deaths.
Alabama:				Missouri:			
Birmingham.....	2	1	.....	Kansas City.....	1	2	.....
Arkansas:				St. Louis.....	5	2	1
North Little Rock.....	0	1	.....	New Hampshire:			
California:				Keene.....	0	1	.....
Oakland.....	0	2	.....	New Jersey:			
Pasadena.....	0	3	.....	Atlantic City.....	0	1	.....
Riverside.....	0	1	.....	Newark.....	0	1	.....
San Francisco.....	1	2	.....	New York:			
Colorado:				Albany.....	2	1	.....
Pueblo.....	0	1	.....	Ithaca.....	0	1	.....
Connecticut:				Newburgh.....	0	1	.....
New Haven.....	1	1	.....	New York.....	13	12	1
Stonington.....	1	1	.....	Niagara Falls.....	0	1	.....
District of Columbia:				Schenectady.....	1	1	.....
Washington.....	4	1	.....	Syracuse.....	0	1	.....
Georgia:				North Carolina:			
Brunswick.....	0	2	.....	Durham.....	0	1	1
Macon.....	0	4	.....	Winston-Salem.....	0	2	.....
Illinois:				Ohio:			
Bloomington.....	0	1	.....	Middletown.....	0	1	.....
Chicago.....	4	1	.....	Toledo.....	2	1	.....
East St. Louis.....	0	1	.....	Oregon:			
Peoria.....	0	2	.....	Portland.....	0	1	.....
Indiana:				Pennsylvania:			
East Chicago.....	0	1	.....	Braddock.....	0	1	.....
Iowa:				Cannonsburg.....	2		
Davenport.....	0	1	.....	Erie.....	1	1	.....
Kansas:				Philadelphia.....	6	3	.....
Coffeyville.....	0	1	1	Wilkinsburg.....	0	1	.....
Kentucky:				Woodlawn.....	1		
Lexington.....	0	1	.....	Tennessee:			
Louisville.....	1	1	.....	Nashville.....	3	1	.....
Louisiana:				Texas:			
New Orleans.....	4	4	.....	Fort Worth.....	0	1	1
Maryland:				Vermont:			
Baltimore.....	6	5	.....	Burlington.....	0	1	.....
Massachusetts:				Virginia:			
Arlington.....	0	1	.....	Alexandria.....	0	1	.....
Boston.....	2	5	1	Norfolk.....	0	1	.....
Fall River.....	1	2	.....	Petersburg.....	0	1	.....
Malden.....	0	1	.....	Richmond.....	0	2	.....
Newton.....	0	1	.....	West Virginia:			
Northampton.....	0	1	.....	Huntington.....	0		1
Somerville.....	0	1	.....	Parkersburg.....	0	1	.....
Michigan:				Wisconsin:			
Detroit.....	4	2	.....	Superior.....	0	1	.....
Flint.....	1	1	.....				
Minnesota:							
Hibbing.....	2	2	.....				

## TYPHUS FEVER.

Place.	Cases.	Deaths.
Maryland: Baltimore.....		1

## CITY REPORTS FOR WEEK ENDED APRIL 30, 1921—Continued.

## DIPHTHERIA, MEASLES, SCARLET FEVER, AND TUBERCULOSIS.

Place.	Population Jan. 1, 1920, sub- ject to cor- rection.	Total deaths from all causes.	Diphtheria.		Measles.		Scarlet fever.		Tuber- culosis.	
			Cases.	Deaths.	Cases.	Deaths.	Cases.	Deaths.	Cases.	Deaths.
Alabama:										
Anniston	17,734	3		8						
Birmingham	178,270	55	1	17					4	4
Mobile	60,151	11	1	3					2	1
Montgomery	43,464	12				1		1		
Tuscaloosa	11,996							1		
Arizona:								1		11
Tucson	20,292	25								
Arkansas:										
Fort Smith	28,811		1		8				1	
Little Rock	64,997	2		9					5	
North Little Rock	14,048	1		2				1		
California:										
Alameda	28,806	8	1	2					1	
Berkeley	55,885	16		2					2	
Eureka	12,923	2				2		1		1
Glendale	13,335									
Long Beach	55,583	13	4	8		1		1		2
Los Angeles	576,673	185	52	102	1	19	1			30
Oakland	216,361	48	7				7			
Pasadena	45,334	23	2	30		2		2		
Richmond	16,843	1								
Riverside	19,311	11	1	1						
Sacramento	65,857	19		6		1		7		
San Bernardino	18,721	8	1	2					1	
San Diego	74,683	23		51	1			3	1	
San Francisco	508,410	141	31	7	26		12		35	11
Santa Barbara	19,441	5	2	3						
Santa Cruz	10,917	8					3	1		
Stockton	40,296	11	1				3		1	
Vallejo	21,107	3					3			
Colorado:										
Denver	256,369	70	9	1	38		7	1		8
Greeley	10,883	4								
Pueblo	42,908	15	3	24		2		3	1	
Trinidad	10,903			1		4				
Connecticut:										
Bridgeport	143,538	29	3	4		24		2	5	
Bristol	20,620	5	3					3		
Fairfield	11,475						2			
Greenwich	22,123				3			1		
Hartford	138,035	43	7	1	27			8	5	
Manchester	18,370	9								
Meriden	29,842		2							
New Britain	50,316	13	5	10		4		1		
New Haven	162,519	35	12	1		17		4	5	
New London	25,688	5				2				
Norwalk	27,700	8	1	1					1	
Norwich	22,304	5	1			1		1		
Stamford	40,057				1		3	1		
Stonington	10,236	2						1		
Delaware:										
Wilmington	110,168	31	1				3		3	
District of Columbia:										
Washington	437,571	116	4	1	261	1	25		38	9
Florida:										
Miami	29,549	12	3		2					2
Georgia:										
Atlanta	200,616	65	3	9		9		1	8	
Brunswick	14,413	2	1							
Lagrange	17,038				4			1		
Macon	52,995	14		1						1
Savannah	83,252	33								5
Valdosta	10,783	3								
Idaho:										
Boise	21,393	4	1		15		14			
Illinois:										
Alton	24,682	3	2		27		2			
Aurora	36,397	9	2		24		1		1	
Bloomington	28,725	14					1			
Blue Island	11,424	2		2		1				
Centralia	12,491	1							4	
Chicago	2,701,705	629	166	17	431	4	133	4	245	46

## CITY REPORTS FOR WEEK ENDED APRIL 30, 1921—Continued.

## DIPHTHERIA, MEASLES, SCARLET FEVER, AND TUBERCULOSIS—Continued.

Place.	Population Jan. 1, 1920, subject to correction.	Total deaths from all causes.	Diphtheria.		Measles.		Scarlet fever.		Tuberculosis.	
			Cases.	Deaths.	Cases.	Deaths.	Cases.	Deaths.	Cases.	Deaths.
<b>Illinois—Continued.</b>										
Danville	33,750	8	1		6		9		1	
Decatur	43,818	15	1		3		6		1	1
East St. Louis	66,740	20	2		4				1	3
Elgin	27,454	6	1		12		1			
Evanston	37,215	5	3		4				1	1
Forest Park	10,768	5			51		5			
Freeport	19,669	7					1		1	
Galesburg	23,834	3			10		1			
Jacksonville	15,713	10			2		4			1
Kewanee	16,026	5	4				1			
La Salle	13,050	2					1			
Mattoon	13,552	7								
Pekin	12,086		1	1			7			
Pearl	76,121	26	1				8		7	1
Rockford	65,651	14	3	1	44		6			1
Rock Island	35,177	3	2				2		3	
Springfield	59,183	10			13		4			1
<b>Indiana:</b>										
Bloomington	11,595	4					1			
Crawfordsville	10,139	2	1				5			
East Chicago	35,967	7			1					
Elkhart	24,277	6					3			
Evansville	85,264	16					1			3
Fort Wayne	36,549	31	8	1	28		2			4
Frankfort	11,585	2					1			
Gary	55,378	20	4	1	2		1			1
Hammond	36,004	10	4							
Huntington	14,000	3	1							
Indianapolis	314,194	84	1		4		29		7	6
Kokomo	30,067	6					3			
La Fayette	22,486	7		1			1		2	
Logansport	21,626	2								
Marion	23,747	3	2				1			1
Mishawaka	15,195	4	1		1		1			
Muncie	36,624	6			3		2		2	
Richmond	26,765	3			1		2			1
South Bend	70,983	11	1		2				1	
Terre Haute	66,083	20	1	1			15		2	
<b>Iowa:</b>										
Burlington	24,057		2							
Cedar Rapids	45,566		2				3			
Davenport	56,727				1		10			
Des Moines	126,468		3				4			
Dubuque	39,141		2				1			
Iowa City	11,267				16					
Keokuk	14,423	2	2		1					
Marshalltown	15,731				4		3			
Mason City	20,065	2								
Muscatine	16,068	9			2					
Ottumwa	23,003	2					3	2		
Sioux City	71,227						5			
<b>Kansas:</b>										
Atchison	12,630				1		1			
Coffeyville	13,452	7								
Fort Scott	10,693	3	4		2					
Hutchinson	23,298				8		3			
Kansas City	101,177		3		14		1		1	1
Lawrence	12,456	3								
Leavenworth	16,912		2		7					
Parsons	16,028	3					1			
Salina	15,085	4	2				1			
Topeka	50,022	19	2		1		4		1	1
Wichita	72,128	22	7		107		11	1	1	
<b>Kentucky:</b>										
Covington	57,121	16	1	1	1		4			3
Lexington	41,534	17	2	1			1			7
Louisville	234,891	78	7		27		12		20	10
<b>Louisiana:</b>										
Monroe	12,675	5					7		24	20
New Orleans	387,219	129	1		1					

## CITY REPORTS FOR WEEK ENDED APRIL 30, 1921—Continued.

## DIPHTHERIA, MEASLES, SCARLET FEVER, AND TUBERCULOSIS—Continued.

Place.	Population Jan. 1, 1920, sub- ject to cor- rection.	Total deaths from all causes.	Diphtheria.		Measles.		Scarlet fever.		Tuber- culosis.	
			Cases.	Deaths.	Cases.	Deaths.	Cases.	Deaths.	Cases.	Deaths.
Maine:										
Auburn	16,985	6			3		1		1	1
Bangor	25,978									
Bath	14,731	2	1		2		1			
Biddeford	18,008									
Lewiston	31,791	11	3		4					1
Portland	69,272	25			15		1			
Sanford	10,691	2								
Waterville	13,351		2		4		2			
Maryland:										
Baltimore	733,823	180	19	2	92	1	11	1	27	25
Cumberland	29,837	9	3							
Massachusetts:										
Adams	12,967	3	4	1						
Amesbury	10,036	4	3							
Arlington	18,665	4			21		11		1	1
Attleboro	19,731	4	1		1		1		1	1
Beverly	22,561	6			2					2
Boston	748,060	203	54	2	115	1	58	3	49	19
Braintree	10,580	3					1			2
Brockton	66,138		1		1		1			
Brookline	37,748	8			1					
Cambridge	100,694	35	14	3	32		7		8	5
Chelsea	43,184	11	4		1		2		3	1
Chicopee	36,214	3	1				1		2	
Clinton	12,979	3								1
Dedham	10,792	2								
Easthampton	11,261	1								
Everett	40,120	10	1		7		2		1	1
Fall River	120,485	27	1		5	1	7		5	
Gardner	16,971	7			80					1
Greenfield	15,462	4								
Haverhill	53,884	18	2				5		4	
Holyoke	60,203	12	2				3		2	1
Lawrence	94,270	21			1		6		7	3
Leominster	19,744	3	1		26				4	
Lowell	112,479	20	4		6		1		5	1
Lynn	90,148	24	4		1				5	
Malden	49,103	6	1		1		3		1	
Medford	39,038	6	3		24		4		2	1
Melrose	18,204	9			2					
Methuen	15,189	7					1			1
New Bedford	121,217	22	1		2		2		10	3
Newburyport	15,618	3								
Newton	46,054	4	2		1		1		2	
North Adams	22,282	7								
Northampton	21,951	8	1		17					
Norwood	12,627	5							1	1
Peabody	19,532	3	4				2			
Pittsfield	41,751	11	1				1		5	3
Plymouth	13,045	5								1
Quincy	47,876	5	1		82				3	1
Salem	42,529	11	1				1			2
Saugus	10,874	3	1		8					1
Somerville	93,091	24	8	1	5		4		4	3
Southbridge	14,245	2			10				2	1
Springfield	129,563	22	3				10		1	3
Taunton	37,137	15	1				2		1	1
Wakefield	13,025	3			11					
Watertown	21,457	5			2		2			
West Springfield	13,443	2								
Westfield	18,604	2	1							
Winthrop	15,455	1					1			
Woburn	16,574	3								1
Worcester	179,754	42	3		58		5		7	6
Michigan:										
Ann Arbor	19,516	1								
Battle Creek	36,164		1	1			1			
Benton Harbor	12,233	0								
Detroit	993,739	211	105	6	41		98	5	68	17
Flint	91,599	17	2		2		4			
Grand Rapids	137,634	29	6				2		6	2
Hamtramck	48,615	15	6	2	5				1	2

## CITY REPORTS FOR WEEK ENDED APRIL 30, 1921—Continued.

## DIPHTHERIA, MEASLES, SCARLET FEVER, AND TUBERCULOSIS—Continued.

Place.	Population Jan. 1, 1920, sub- ject to cor- rection.	Total deaths from all causes.	Diphtheria.		Measles.		Scarlet fever.		Tuber- culosis.	
			Cases.	Deaths.	Cases.	Deaths.	Cases.	Deaths.	Cases.	Deaths.
<b>Michigan—Continued.</b>										
Ironwood	15,730	2			3					
Ishpeming	10,500	1			2		2		2	
Kalamazoo	48,858	20			2		2		2	
Marquette	12,718	5								
Muskegon	36,570	7								
Pontiac	34,273	11			1		6		2	
Port Huron	25,944	5			1		1		1	
Sault Ste. Marie	12,096	2			4		2		1	
<b>Minnesota:</b>										
Austin	10,118	4								1
Duluth	98,917	19	3	1	2		8			3
Mankato	12,469	2							1	
Minneapolis	380,582	84	12	1	20		47	1	23	7
Rochester	13,722	23								
St. Paul	234,505	48	10		1		13		10	4
Virginia	14,022		1						1	
Winnona	19,143						2			
<b>Missouri:</b>										
Cape Girardeau	10,252	4					1			
Independence	11,686	3	1							
Kansas City	324,410	89	12		73		2		5	7
Saint Joseph	77,939	26	1	1	6		2		2	
Saint Louis	772,897	179	49	2	12		70	1	56	21
Springfield	39,631	10								1
<b>Montana:</b>										
Anaconda	11,668	11								
Billings	15,100	4			2					
Butte	41,611	10	1							
Great Falls	24,121	6			3				2	
Missoula	12,668	7			3				1	
<b>Nebraska:</b>										
Lincoln	54,934	17	3		1				1	
Omaha	191,601	36	10		21		13			5
<b>Nevada:</b>										
Reno	12,016	7								
<b>New Hampshire:</b>										
Berlin	16,104	4								2
Concord	22,167	5								
Dover	13,029	2								
Keene	11,210								1	1
Manchester	78,384	9	3	1			4		5	
Nashua	28,379	7					2		2	
<b>New Jersey:</b>										
Asbury Park	12,400	6			1					
Atlantic City	50,682	12	10		8		3		3	1
Bayonne	76,754		4		2		11			
Bellefonte	15,660		1				1		2	
Bloomfield	22,019	5	1		2					
Clifton	26,470	1	1		4		3			
Elizabeth	95,682		10	1	13		8		5	2
Englewood	11,027	3					4			
Garfield	19,381				4		1			
Gloucester City	12,162								1	
Hackensack	17,667	6					4		1	1
Harrison	15,721				3		2			
Hoboken	68,166	25	3		1		4			2
Irvington	25,480		3				3			
Jersey City	297,864		17		26		13		13	
Kearny	26,724	6	2		3		6			1
Montclair	28,810	0			17		2		1	
Morristown	12,548	2	1		5		4			
New Brunswick	32,779		16		2					
Newark	414,216	92	12	4	26		66	1	38	13
Orange	33,268	11	1				4		2	1
Passaic	63,824	20	2		5	1	9	1	3	4
Paterson	135,866		8		22		3		3	
Perth Amboy	41,707	3	5				3		3	
Phillipsburg	16,923		5							1
Plainfield	27,701	4	2		4		2		2	
Rahway	11,042	3	2				3		1	
Summit	10,174		1							
Trenton	119,289	32	4		7		3		1	5
Union	20,651		2		4		5		1	

## CITY REPORTS FOR WEEK ENDED APRIL 30, 1921—Continued.

## DIPHTHERIA, MEASLES, SCARLET FEVER, AND TUBERCULOSIS—Continued.

Place.	Population Jan. 1, 1920, sub- ject to cor- rection.	Total deaths from all causes.	Diphtheria.		Measles.		Scarlet fever.		Tuber- culosis.	
			Cases.	Deaths.	Cases.	Deaths.	Cases.	Deaths.	Cases.	Deaths.
New Jersey—Continued.										
West Hoboken.....	40,068	9	5	4	2	2	1	1	1	1
West New York.....	29,926	2	1	2	2	2	2	1	1	1
West Orange.....	15,573	1	1	10	2	2	1	1	1	1
New Mexico:										
Albuquerque.....	15,157		2		1		1			
New York:										
Albany.....	113,344		4		50		2		5	
Binghamton.....	66,800	20	3	1	1	4	1	1	1	1
Buffalo.....	506,775	134	42	3	59	3	35	2	29	5
Cohoes.....	22,987	5								
Geneva.....	14,648	1								
Ithaca.....	17,004	2			2					
Jamestown.....	38,917	7			51		1		2	
Lackawanna.....	17,918	0								
Lockport.....	21,308	3	5		19					
Middletown.....	18,420						1		1	
Mount Vernon.....	42,726	9	4		1		3		2	1
Newburgh.....	30,365	6	1		2		2		1	
New York	5,621,151	1,327	433	23	246	6	344	12	284	100
Niagara Falls.....	50,760	15	7		1		10		3	
Ogdensburg.....	14,609	4								
Peekskill.....	15,868	6								
Port Chester.....	16,573	3								
Rome.....	26,341		9		5		2		1	
Saratoga Springs.....	13,171	3			8				1	
Schenectady.....	88,723	11	1		12		5	1		
Syracuse.....	171,717	47	18	1	52		9		5	1
Troy.....	72,013	15			4				6	
Watervliet.....	16,073	3								
White Plains.....	21,031	4			1					
Yonkers.....	100,226	15	6		20		4			1
North Carolina:										
Charlotte.....	46,338	18					1		8	2
Durham.....	21,719	13			8				1	3
Greensboro.....	19,861	4								
Rocky Mount.....	12,742	2								
Salisbury.....	13,884	6								
Wilmington.....	33,372	10	2		27		1			
Winston-Salem.....	48,395	16			3				3	
North Dakota:										
Fargo.....	21,961	10			1		3			
Grank Forks.....	14,010	0	2		10		2			
Minot.....	10,476	2	1		1		3			
Ohio:										
Akron.....	208,435	25	1		2		2		3	
Alliance.....	21,603	6	2				2			
Barberton.....	18,311	6					2		1	2
Bucyrus.....	10,425	2	1							
Canton.....	87,091	14	12		2		6			
Chillicothe.....	15,831	3					1			
Cincinnati.....	401,247	111	6	1	13	2	24		8	4
Cleveland Heights.....	15,236						2			
Columbus.....	237,031	58	3		2		14	1	2	4
Dayton.....	152,559	43	2				1		2	
East Cleveland.....	27,292		2		1					
Findlay.....	17,021	4								
Fremont.....	12,468	3								
Hamilton.....	39,675	6	1		1		4			2
Ironton.....	14,007	4			2		1			
Kenmore.....	12,683		1							
Lancaster.....	14,706	6		1	3				1	
Lima.....	41,306	10	1				3		1	
Lorain.....	37,295				24		2		3	
Mansfield.....	27,824	3	1		3		1			
Marion.....	27,891						1			
Middletown.....	23,594	4	1		2		1		3	1
Newark.....	26,718	13					1			2
New Philadelphia.....	10,718						1			
Niles.....	13,080	6			26	1	1			2
Norwood.....	21,996	6					1			

<sup>1</sup> Pulmonary tuberculosis only.

## CITY REPORTS FOR WEEK ENDED APRIL 30, 1921—Continued.

## DIPHTHERIA, MEASLES, SCARLET FEVER, AND TUBERCULOSIS—Continued.

Place.	Population Jan. 1, 1920, subject to correction.	Total deaths from all causes.	Diphtheria.		Measles.		Scarlet fever.		Tuberculosis.	
			Cases.	Deaths.	Cases.	Deaths.	Cases.	Deaths.	Cases.	Deaths.
<b>Ohio—Continued.</b>										
Piqua	15,044	2								
Salem	10,305	5								
Sandusky	22,897	7			1					1
Springfield	60,840	13	3	1	12		21		2	
Steubenville	28,508	7	1				3			
Tiffin	14,375	3							1	
Toledo	243,109	61	11	3	1		18		3	
Youngstown	132,358	35	3		79	1	7		4	
Zanesville	29,569	14	1							1
<b>Oklahoma:</b>										
Muskogee	30,277				11				1	1
Oklahoma City	91,258	24			1			1		1
Tulsa	72,075		4				1			
<b>Oregon:</b>										
Portland	258,288	52	10		95		2		11	2
<b>Pennsylvania:</b>										
Allentown	73,502		3		22		3			
Altoona	60,331		2		12		1			
Ambridge	12,730				1					
Beaver Falls	12,802				1		1			
Berwick	12,181		2		1		2			
Bethlehem	56,358		2		3		5			
Braddock	20,879		2		1		1			
Bradford	15,525				1		1			
Butler	23,778		1		41		8			
Canonsburg	10,632		1				1			
Carbondale	18,640		1				3		1	
Carnegie	11,516		1							
Charleroi	11,516						1			
Chester	58,030		2		2		4			
Coatesville	14,515						4			
Connellsville	13,804				3		4			
Dickson City	11,049		2							
Donora	14,131				1					
Dubois	18,681		1							
Duquesne	19,011						1		1	
Easton	33,813				11					
Erie	93,372		7		75		3		4	
Greensburg	15,033				4					
Harrisburg	75,917		2		38		4			
Hazleton	32,277		1		11					
Johnstown	67,327				7					
Lancaster	53,150						2			
McKeesport	45,975								2	
Meadville	14,568						3			
Monessen	18,179				21		1			
Nanticoke	22,614				2		2			
New Kensington	11,987				1					
Norristown	32,319		2		1		2			
North Braddock	14,928		1		4		2			
Oil City	21,274									
Philadelphia	1,823,158	496	26	9	70		144	3	69	50
Pittsburgh	588,193		36		139		44		29	
Plymouth	16,509		1		5					
Pottstown	17,431				1				1	
Pottsville	21,876		1		13		1		1	
Reading	107,784		4		28		4		1	
Seranton	137,783		2		14		5			
Shamokin	21,204		1							
Sharon	21,747		2		3					
Shenandoah	24,726						1			
Swissvale	10,508				6					
Tamaqua	12,363		2		2		1			
Washington	21,480						2			
Wilkes-Barre	73,833		4		14		10			
Wilkinsburg	24,403		1				2			
Williamsport	36,198						5			
York	47,512		11				1		2	
<b>Rhode Island:</b>										
Cranston	20,407	5				3	2	3		
Newport	30,255	9					8			
Pawtucket	64,248	17	1	2	51	4	16			1
Providence	237,505	63	11	2						10

**CITY REPORTS FOR WEEK ENDED APRIL 30, 1921—Continued.**

**DIPHTHERIA, MEASLES, SCARLET FEVER, AND TUBERCULOSIS—Continued.**

Place.	Population Jan. 1, 1920, subject to correction.	Total deaths from all causes.	Diphtheria.	Measles.	Scarlet fever.	Tuberculosis.
		Cases.	Deaths.	Cases.	Deaths.	Cases.
<b>South Carolina:</b>						
Charleston	67,957	24		3		
Columbia	37,524		24			2
<b>South Dakota:</b>						
Sioux Falls	25,176	10		3		
<b>Tennessee:</b>						
Chattanooga	57,885				3	1
Knoxville	77,818			1	1	1
Nashville	118,342	52	3	15	6	5
<b>Texas:</b>						
Austin	34,876	4			1	
Beaumont	40,422	16	1			1
Corpus Christi	10,522	4		1		
Dallas	158,976	37	2	122	2	7
El Paso	77,543	57	1		1	8
Forth Worth	106,482			24	4	11
Galveston	44,255	8				1
Waco	38,500	12			2	
<b>Utah:</b>						
Provo	10,303			7	3	
Salt Lake City	118,110	26	4	9	8	1
<b>Vermont:</b>						
Burlington	22,779	4	1		2	
Rutland	14,954	6		2		
<b>Virginia:</b>						
Alexandria	18,060	2		3		
Danville	21,539	4	1	20		1
Lynchburg	29,956	12		74	1	3
Norfolk	115,777			7	8	6
Petersburg	31,002	17		54	2	3
Richmond	171,667	37	1	18	1	22
Roanoke	50,842	11	1	20		3
<b>West Virginia:</b>						
Bluefield	15,282		1	4	1	
Charleston	39,008	17		3	8	
Fairmont	17,551		1	1	1	
Huntington	50,177	21	1			3
Moundsville	10,669	3				
Parkersburg	20,030	5	1			
Wheeling	54,322	18	4	4	1	2
<b>Wisconsin:</b>						
Appleton	19,561				8	
Beloit	21,284	4				1
Eau Claire	20,880		1		2	
Fond du Lac	23,427	6	4			
Green Bay	31,017	10	3	4	7	
Janesville	18,293	3	2			
Kemoshia	40,472	4		3		1
La Crosse	30,363			1		
Madison	38,378	7		5	7	1
Marinette	13,610					1
Milwaukee	457,147		19	2	33	16
Oshkosh	33,162	17	1		4	
Racine	58,593	9	3		6	
Sheboygan	30,935					2
Superior	30,624	11			1	3
Wausau	18,661				2	3
<b>Wyoming:</b>						
Cheyenne	13,829	3				

## FOREIGN AND INSULAR.

### CANADA.

#### Communicable Diseases—Province of Ontario—April, 1921.

The following table shows the number of cases of communicable diseases occurring in the Province of Ontario, Canada, during the month of April, 1921, as compared with the same month of the year 1920. The number of fatalities from these diseases is also shown. Population, estimated in 1920, 2,523,200.

Disease.	April, 1921.		April, 1920.	
	Cases.	Deaths.	Cases.	Deaths.
Cerebrospinal meningitis.....	7	6	7	5
Diphtheria.....	409	34	418	58
Measles.....	284		1,618	27
Pneumonia (with influenza).....	90	30	177	143
Pneumonia (primary).....	250			302
Scarlet fever.....	365	7	487	12
Smallpox.....	383	2	305	4
Tuberculosis.....	196	121	223	193
Typhoid fever.....	32	5	33	11
Whooping cough.....	165	16	135	17

Smallpox was reported in the Province of Ontario during the month of April, 1921, in 37 counties and 69 municipalities. The largest number of reported cases, viz, 116, occurred in Ottawa.

Venereal diseases were reported in the Province of Ontario during the month of April, 1921, as follows: Chancroid, 1 (April, 1920, 7); gonorrhea, 236 (April, 1920, 137); syphilis, 219 (April, 1920, 93).

### MEXICO.

#### Plague—Tampico.

Plague has been reported at Tampico, Mexico, as follows: May 7, 1921, 4 cases; May 9, 1921, four cases. The total number of cases reported from January 1 to May 9, 1921, was stated to be 26.

### UNION OF SOUTH AFRICA.

#### Plague—Orange Free State.

During the week ended March 26, 1921, seven cases of plague, occurring among natives, were reported in the Orange Free State, Union of South Africa. Of these cases, two occurred on a farm in the Hoopstad district and five on a farm in the Bothaville area of the Kroonstad district.

## CHOLERA, PLAGUE, SMALLPOX, TYPHUS FEVER, AND YELLOW FEVER.

Reports Received During Week Ended May 20, 1921.<sup>1</sup>

## CHOLERA.

Place.	Date.	Cases.	Deaths.	Remarks.
India:				
Calcutta	Mar. 13-19	103	89	Jan. 23-29, 1921: Deaths, 1,404.
Madras	Mar. 27-Apr. 2	2		
Philippine Islands:				
Manila	do	1		

## PLAQUE.

British East Africa:				
Kenya Colony—				
Kisumu	Feb. 27-Mar. 26			Present.
Ceylon:				
Colombo	Mar. 20-26	5	8	
Egypt:				
Cities—				
Suez	Apr. 2-7	4	4	
Provinces—				
Gharbieh	Apr. 7	9	1	
India:				
Bombay	Mar. 13-19	44	39	Mar. 13-19, 1921: Cases, 2,943;
Karachi	Mar. 27-Apr. 2	3	3	deaths, 2,450.
do	do	352	233	
Madras Presidency				
Mexico:				
Tampico	May 7-9	8		Total, Jan. 1-May 9, 1921: Cases, 26.
Peru:				
Trujillo-Salaverry	do	2		
Porto Rico:				
Carolina	Apr. 24-30	1		
Straits Settlements:				
Singapore	Mar. 13-19	1	1	
Union of South Africa:				
Orange Free State—				
Hoopstad District	Mar. 20-26	2		Natives. On farm.
Kroonstad district	do	5		Natives. In Bothaville area. On farm.

## SMALLPOX.

Canada:				
Ontario—				
Ottawa	Apr. 24-30	29		
Sault Ste. Marie	do	2		Apr. 23, 1921: 4 cases under quarantine.
Toronto	Apr. 24-30			
Saskatchewan—				
Moose Jaw	do	1		
Chile:				
Antofagasta	Mar. 28-Apr. 10	4	2	2 new cases Apr. 11, 1921.
China:				
Foochow	Mar. 20-26			Present.
Manchuria Province—				
Mukden	do			Do.
Tientsin	do	1		
Tsingtao	Mar. 21-27	1		
Colombia:				
Santa Marta	Apr. 17-23			Do.
Cuba:				
Nuevitas	Apr. 18-24	13		
Egypt:				
Alexandria	Apr. 2-8	1		
Haiti:				
Cape Haitien	Apr. 3-9	14		West Indian type.
India:				
Bombay	Mar. 13-19	48	26	Jan. 23-29, 1921: Deaths, 592.
Calcutta	do	4	2	
Karachi	Mar. 27-Apr. 2	1		
Madras	do	10	1	
Italy				
Messina	Mar. 28-Apr. 3	3		

<sup>1</sup> From medical officers of the Public Health Service, American consuls, and other sources.

## CHOLERA, PLAGUE, SMALLPOX, TYPHUS FEVER, AND YELLOW FEVER—Continued.

## Reports Received During Week Ended May 20, 1921—Continued.

## SMALLPOX—Continued.

Place.	Date.	Cases.	Deaths.	Remarks.
Java:				
West Java—				
Batavia.....	Mar. 3-9.....	3		
Krawang.....	.....do.....	25	1	
Pandeglang.....	.....do.....	4		
Jugoslavia:				
Zagreb.....	Mar. 20-26.....	3		
Mexico:				
San Luis Potosi.....	Apr. 24-30.....		1	
Newfoundland:				
St. Johns.....	Apr. 23-29.....	1		
Panama:				
Colon.....	Apr. 13-26.....	9		
Russia:				
Siberia—				
Vladivostok.....	Feb. 1-28.....	1		
Senegal:				
Dakar.....	Mar. 1-31.....			Present.
Tunis:				
Tunis.....	Apr. 9-15.....	3	6	
Turkey:				
Constantinople.....	Apr. 3-9.....	4	1	
Union of South Africa.....				Mar. 13-25, 1921: Cases in Cape Province, Orange Free State, and Transvaal.

## TYPHUS FEVER.

Place.	Date.	Cases.	Deaths.	
Algeria:				
Oran.....	Apr. 11-20.....	51	10	
Egypt:				
Alexandria.....	Apr. 2-15.....	8	4	
Cairo.....	Feb. 12-18.....	3	1	
Great Britain:				
Dublin.....	Apr. 3-9.....	1		
Guatemala:				
Guatemala City.....	Mar. 1-31.....		1	Several cases in vicinity.
Russia:				
Siberia—				
Vladivostok.....	Feb. 1-28.....	4	3	
Union of South Africa.....				Mar. 12-26, 1921: Outbreaks in Cape Province.

## Reports Received from Jan. 1 to May 13, 1921.

## CHOLERA.

Place.	Date.	Cases.	Deaths.	Remarks.
China:				
Canton.....	Nov. 1-30.....	7	6	
Changsha.....	Nov. 29.....			Present.
Chungking.....	.....do.....			Do.
Chosen (Korea).....				Aug. 1-Dec. 2, 1920: Cases, 24,017; deaths, 13,329.
India.....				Sept. 26-Oct. 9, 1920: Deaths, 2,672. Oct. 31-Dec. 11, 1920: Deaths, 7,184. Jan. 2-22, 1921: Deaths, 3,081.
Bombay.....	Dec. 5-11.....	2	2	
Do.....	Jan. 16-Feb. 26.....	4	2	
Calcutta.....	Oct. 31-Dec. 25.....	321	283	
Do.....	Dec. 25-Mar. 12.....	662	533	
Madras.....	Dec. 12-18.....	77	44	
Do.....	Dec. 26-Mar. 29.....	311	115	
Rangoon.....	Nov. 28-Dec. 25.....	9	8	
Do.....	Dec. 26-Mar. 5.....	22	20	
Indo-China.....				July 1-31, 1920: Cases, 135; deaths, 98.
Saigon.....	Dec. 27-Feb. 27....	7	4	Including surrounding country.

**CHOLERA, PLAGUE, SMALLPOX, TYPHUS FEVER, AND YELLOW FEVER—Continued.**
**Reports Received from Jan. 1 to May 13, 1921—Continued.**
**CHOLERA—Continued.**

Place.	Date.	Cases.	Deaths.	Remarks.
Japan:				
Taiwan Island (Formosa) .....	Nov. 11-Dec. 31 .....	219	93	
Do. ....	Jan. 1-20 .....	2	.....	
Java:				
West Java—				
Bandoeeng .....	Oct. 29-Nov. 11 .....	2	1	
Batavia .....	Nov. 25-Dec. 1 .....	1	.....	
Philippine Islands:				
Manila .....	Nov. 7-Dec. 25 .....	9	.....	
Do. ....	Jan. 9-Mar. 19 .....	14	.....	
Provinces—				
Cagayan .....	Oct. 3-Nov. 20 .....	11	9	
Mindoro .....	Jan. 9-15 .....	4	.....	
Occidental Negros .....	do. ....	1	.....	
Samar .....	Aug. 1-7 .....	1	1	
Sorsogon .....	Jan. 2-8 .....	1	.....	
Poland .....				Oct. 1-31, 1920: Cases, 26; deaths, 13. Mar. 15, 1921: Cases present, 86 among prisoners; 8 in civil population; 2 among military.
Eastern frontier—				Present.
Bialystok .....	Dec. 16 .....	19	11	
Galicia .....	Nov. 1-30 .....	.....		Do.
Grodno .....	do. ....	.....		Do.
Olitz .....	do. ....	.....		Present in Russian prison camp, Mar. 1, 1921: Cases, 31.
Posen .....	do. ....	.....		
Straikowo .....	do. ....	.....		
Strelno .....	do. ....	1	1	In district.
Warsaw .....	Oct. 1-31 .....	2	.....	Nov. 1-30, 1920: Cases, 7; deaths, 2.
Do. ....	Dec. 16 .....	5	.....	
Russia:				
Lithuania .....				
Latvia—				
Riga .....	Jan. 22 .....	.....		Feb. 10, 1921: Cases reported, 33; mortality, 30 per cent.
Siam:				Present.
Bangkok .....	Oct. 9-Nov. 7 .....	7	1	
Do. ....	Dec. 26-Feb. 26 .....	5	2	

**PLAGUE.**

Algeria:				
Algiers .....	Nov. 1-Dec. 31 .....	3	1	
Do. ....	Jan. 1-31 .....	3	1	
Oran .....	Mar. 11-20 .....	2	1	Dec. 20, 1920: One case.
Argentina:				
Rosario .....	Feb. 1-28 .....	.....	3	Jan. 1-31, 1921; 3 plague rodents found.
Azores:				
St. Michaels .....	Feb. 5-11 .....	1	.....	Total, Oct. 1-Dec. 10, 1920: Cases, 149; deaths, 49. In vicinity of Ponta Delgada.
Brazil:				
Bahia .....	Oct. 31-Dec. 18 .....	6	4	
Do. ....	Dec. 26-Mar. 12 .....	14	4	
Ceara .....	Oct. 17-Feb. 5 .....	.....	16	
Pernambuco .....	Oct. 18-Dec. 5 .....	1	3	
Porto Alegre .....	Nov. 14-Dec. 11 .....	.....	2	
Do. ....	Dec. 23-Feb. 19 .....	.....	7	
Rio de Janeiro .....	Feb. 15-21 .....	1	.....	
British East Africa:				
Kenya Colony—				
Kisumu .....	Oct. 31-Dec. 25 .....	.....		Outbreak Nov. 8, 1920: Cases reported, 1,067.
Do. ....	Dec. 26-Feb. 12 .....	.....		Present.
Mombassa .....	Oct. 31-Dec. 25 .....	2	2	Do.
Do. ....	Dec. 26-Jan. 15 .....	.....		Do.
Nairobi .....	Oct. 31-Dec. 25 .....	16	11	Pneumonic, present.
Do. ....	Jan. 2-Feb. 5 .....	19	15	Entire protectorate.
Uganda .....	Oct. 21-Dec. 25 .....	111	103	Do.
Do. ....	July 1-Nov. 5 .....	250	63	
Ceylon:				
Colombo .....	Nov. 7-Dec. 18 .....	18	60	
Do. ....	Jan. 19-Mar. 19 .....	113	96	
Chile:				
Antofagasta .....	July 9-Dec. 29 .....	15	2	Year 1920: Cases, 24.
Do. ....	Dec. 27-Feb. 5 .....	3	.....	

## CHOLERA, PLAGUE, SMALLPOX, TYPHUS FEVER, AND YELLOW FEVER—Continued.

## Reports Received from Jan. 1 to May 13, 1921—Continued.

## PLAGUE—Continued.

Place.	Date.	Cases.	Deaths.	Remarks.
China:				
Chihli Province:				
Peking	Jan. 25	1		
Hongkong	Nov. 7-Dec. 18	6	6	
Do	Jan. 9-Feb. 12	6	6	
Hwangsein	Feb. 12			A few cases reported.
Kwantung Province	Dec. 29			Reported present in Tapu district. Mar. 7, 1921: Recurrence.
Manchuria Province—				
Changchun	Feb. 18	15		
Harbin	Feb. 2-Mar. 26	148		West of Harbin, Feb. 7, 1921, 400 fatal cases reported. Feb. 14, 1921, fatal cases, 1,200. To Mar. 14, 1921: 4,000 fatal cases. Pneumonic. Fatal cases reported daily, about 40. Apr. 13, improving; east of Harbin, more serious.
Manchuria station	Jan. 1-Mar. 10	283		
Mukden	Feb. 20-26	50		Prevalent. Pneumonic.
Sang Yuan	Mar. 3			In Northern Shantung Province. Two plague rats found, Dec. 23 and Dec. 31, 1920.
Shanghai				Present.
Tsitsihar	Feb. 2-Mar. 10			
Ecuador:				
Guayaquil	Nov. 16-Dec. 31	111	36	Jan. 1-Dec. 30, 1920: Cases, 462; deaths, 269. Jan. 1-Mar. 10, 1921: Cases, 33; deaths, 19.
Do	Jan. 1-Mar. 31	212	72	
Egypt:				
Cities				
Alexandria	Jan. 17-Apr. 1	4	2	
Port Said	Oct. 22-28	1	1	
Do	Jan. 22	1	1	
Suez	Nov. 18-27	10	3	
Do	Jan. 5-Mar. 3	12	10	Pneumonic, 6 cases; septicemic, 1 case.
Provinces				
Assiout	Nov. 24	3	2	
Girgeh	Mar. 7	3		
Mineh	Feb. 14-Mar. 3	5	1	
France:				
Marseille	June-Aug. 31	58	20	In suburbs, June-Nov. 2, 1920: Cases, 38; deaths, 19.
Paris	June-Oct. 15	50	11	Jan. 1-13, 1921: Cases, 3; deaths, 1. (Suspect.)
Do				
Great Britain:				1 case reported Dec. 15, 1920; date of occurrence, Oct. 18, 1920. Plague-infected rat found, period Nov. 28-Dec. 11, 1920.
Dublin				
Liverpool				
Greece:				
Kavala	Oct. 25-Nov. 7	2		
India:				
Bombay	Nov. 28-Dec. 25	6	6	Oct. 24-Dec. 25, 1920: Cases, 21,376; deaths, 14,874. Jan. 2-Mar. 12, 1921: Cases, 44,859; deaths, 35,074.
Do	Dec. 26-Mar. 12	76	55	
Calcutta	Nov. 14-20	46	44	
Do	Jan. 30-Feb. 12	1	1	
Karachi	Dec. 25-31	2	2	
Madras	Dec. 5-25	7	4	
Do	Jan. 9-29	3	1	
Madras Presidency	Nov. 14-Dec. 25	4,349	2,991	
Do	Dec. 26-Mar. 29	10,454	7,603	
Rangoon	Oct. 31-Dec. 25	30	28	
Do	Dec. 26-Mar. 12	209	200	
Indo-China				July 1-31, 1920: Cases, 98; deaths, 74.
Saigon	Dec. 27-Mar. 20	9	5	Including surrounding country.
Java:				
West Java—				
Batavia	Nov. 21-Dec. 1	3	3	
Do	Jan. 13-26	1	3	
Jugoslavia:				
Cattaro	Feb. 23	3		Among French troops.

**CHOLERA, PLAGUE, SMALLPOX, TYPHUS FEVER, AND YELLOW FEVER—Continued.**
**Reports Received from Jan. 1 to May 13, 1921—Continued.**
**PLAQUE—Continued.**

Place.	Date.	Cases.	Deaths.	Remarks.
<b>Madagascar:</b>				
Tamatave.....	Mar. 9.....			Present.
<b>Mesopotamia:</b>				
Bagdad.....	Oct. 1-31.....	25	7	
Do.....	Feb. 1-28.....	1	2	
<b>Mexico:</b>				
Carbonera.....	Dec. 5-20.....	3	1	State of San Luis Potosi. Dec., 1920-Feb. 12, 1921: Cases, 24.
Do.....	Dec. 26-Jan. 8.....	3		State of San Luis Potosi.
Cerritos.....	Dec. 5-20.....	7	8	
Do.....	Dec. 26-Feb. 5.....	5		
Tampico.....	Mar. 23-May 2.....	13	2	<b>Total plague cases, Jan. 1-May 2, 1921: 18.</b>
Vera Cruz.....				Mar. 21-Apr. 10, 1921: Four plague-infected rodents found. Mar. 14, 1921: Rodent plague present.
<b>Paraguay:</b>				
Asuncion.....	Feb. 4.....	1	1	
<b>Peru:</b>				
Departments—				
Callao-Lima.....	Feb. 1-15.....	2		
Callao.....	do.....	1		
Libertad.....	Dec. 27-Mar. 27.....	33	8	July-December, 1920: Cases, 23; deaths, 13. Jan.-Feb. 28, 1921: Cases, 14; deaths, 7.
Trujillo-Salaverry.....	Feb. 1-15.....	14	4	July-December, 1920: Cases, 23; deaths, 10. Jan. 1-31, 1921: Cases, 3; deaths, 2.
Lima.....	do.....	21	10	
Piura.....				
<b>Porto Rico:</b>				
Carolina.....	April 17-23.....	1	1	
San Juan.....	Feb. 18-25.....	7	2	Feb. 17-Mar. 3, plague rats found, 19. Apr. 17-23, 1921: Two cases clinically confirmed, 1 at Arecibo, 1 at Carolina; 5 plague rats found at three localities.
<b>Portuguese West Africa:</b>				
Angola—				
Loanda.....				Mar. 18-Apr. 8, 1921: Rat plague present.
<b>Russia:</b>				
Batum.....	Nov. 24-Dec. 3.....	38		Epidemic outbreak.
Siberia—				
Vladivostok.....	Apr. 22.....			Prevalent. A few deaths among Chinese.
<b>Siam:</b>				
Bangkok.....	Dec. 5-11.....	1	1	
<b>Straits Settlements:</b>				
Singapore.....	Oct. 31-Nov. 6.....	1	1	
Do.....	Feb. 13-Mar. 12.....	3	3	
<b>Tunis:</b>				
Ben Gardane.....				June-July, 1920: Cases, 6. November-December, 1920: Cases, 10, in surrounding territory.
Zarzis.....	Jan. 25.....	1		Jan. 15, 1921: Ten cases notified in vicinity. (Corrected report received Mar. 30, 1921.) Apr. 26, 1921: Outbreak in vicinity reported.
<b>Turkey:</b>				
Constantinople.....	Nov. 21-27.....	1	2	
<b>Union of South Africa:</b>				
Orange Free State—				
Hoopstad district.....	Nov. 28-Dec. 18.....	3	1	1 European, 2 natives. On Vryheid Farm. (Public Health Reports, June 25, 1920, p. 1560.)
Do.....	Jan. 23-Feb. 5.....	1	1	European: On farm.
Kroonstad district.....	Jan. 23-Feb. 26.....	4	3	On farm. Plague-infected wild rodents found.
<b>On vessel:</b>				
S. S. Kroaprincessan Victoria.....	Jan. 15.....			At Stockholm, Sweden. Rat plague found. Vessel left Buenos Aires, Argentina, Nov. 17, 1920. Stopped at Goteborg and Malmo, Sweden. Left Malmo Jan. 11, 1921. Rats found dead Jan. 13, 1921, at Stockholm.

## CHOLERA, PLAGUE, SMALLPOX, TYPHUS FEVER, AND YELLOW FEVER—Continued.

Reports Received from Jan. 1 to May 13, 1921—Continued.  
SMALLPOX.

Place.	Date.	Cases.	Deaths.	Remarks.
Algeria:				
Algiers.....	Jan. 1-31.....	5.....	.....	
Austria.....				Aug. 29-Dec. 25, 1920: Cases, 75.
Azores:				
Ponta Delgada.....	Dec. 18-24.....	7.....	.....	
Bolivia:				
La Paz.....	Oct. 1-Dec. 31.....	19.....	7.....	
Brazil:				
Bahia.....	Oct. 31-Dec. 25.....	6.....	.....	
Do.....	Jan. 8-15.....	4.....	.....	
Pernambuco.....	Oct. 18-Dec. 19.....	102.....	2.....	
Do.....	Dec. 27-Jan. 30.....	36.....	.....	
Rio de Janeiro.....	Oct. 24-Dec. 25.....	112.....	26.....	
Do.....	Dec. 26-Mar. 5.....	25.....	8.....	
Sao Paulo.....	Dec. 13-19.....	.....	1.....	
British East Africa:				
Kenya Colony—				
Mombasa.....	Jan. 23-29.....	1.....	.....	May 1-June 30, 1920: Cases, 272.
Bulgaria:				
Sofia.....	Nov. 7-13.....	2.....	.....	
Canada:				
Alberta—				
Calgary.....	Dec. 12-18.....	2.....	.....	
Do.....	Jan. 2-Apr. 9.....	15.....	.....	
British Columbia—				
Fernie.....	Feb. 6-12.....	2.....	.....	
Vancouver.....	Dec. 5-11.....	1.....	.....	
Do.....	Dec. 26-Apr. 2.....	32.....	.....	
Victoria.....	Jan. 30-Mar. 5.....	5.....	.....	
Manitoba—				
Winnipeg.....	Jan. 16-Apr. 12.....	29.....	.....	
New Brunswick—				
Bonaventure and	Feb. 1-Mar. 3.....	16.....	.....	From lumber camp on Canadian
Gaspé Counties.....				Government R. R., Feb. 5,
Campbellton.....	Jan. 9-15.....	.....		1921, 5 cases.
Gloucester County.....	Jan. 23-29.....	1.....	.....	Present.
Madawaska County.....	Jan. 30-Feb. 19.....	2.....	.....	
Northumberland				
County.....	Mar. 6-12.....	1.....	.....	
Restigouche County.....	Dec. 12-18.....	1.....	.....	
Do.....	Feb. 6-19.....	2.....	.....	
St. Stephen.....	Feb. 27-Mar. 5.....	1.....	.....	
York County.....	do.....	6.....	.....	
Nova Scotia—				
Sydney.....	Feb. 13-Apr. 16.....	19.....	.....	
Yarmouth.....	Jan. 9-Mar. 26.....	8.....	.....	November-December, 1920: Cases,
Ontario.....				902; deaths, 5. Jan. 1-31, 1921:
Hamilton.....	Dec. 19-31.....	9.....	.....	Cases, 902; deaths, 3.
Do.....	Jan. 2-Apr. 23.....	74.....	.....	
Kingston.....	Dec. 26-Apr. 23.....	15.....	.....	
London.....	Jan. 2-Apr. 9.....	35.....	.....	
Montreal.....	Jan. 2-Apr. 23.....	15.....	.....	
Niagara Falls.....	Dec. 12-18.....	1.....	.....	
North Bay.....	Dec. 12-23.....	4.....	.....	
Do.....	Jan. 2-Apr. 16.....	33.....	.....	
Ottawa.....	Dec. 12-23.....	75.....	1.....	
Do.....	Dec. 26-Apr. 23.....	745.....	2.....	
Peterborough.....	do.....	3.....	.....	
Prescott.....	Apr. 3-9.....	1.....	.....	
Sarnia.....	Feb. 20-Mar. 5.....	2.....	.....	
Sault Ste. Marie.....	Jan. 9-Feb. 12.....	48.....	.....	Mar. 27-Apr. 2, 1921: Present.
Toronto.....	Dec. 12-25.....	7.....	.....	
Do.....	Dec. 26-Apr. 16.....	71.....	.....	
Quebec—				
Quebec.....	Jan. 28-Feb. 19.....	2.....	.....	
Saskatchewan—				
Moose Jaw.....	Dec. 19-25.....	1.....	.....	
Do.....	Jan. 2-Apr. 23.....	45.....	.....	
Regina.....	Dec. 12-25.....	11.....	.....	
Do.....	Jan. 2-Apr. 23.....	67.....	.....	
Saskatoon.....	Dec. 16-22.....	20.....	.....	
Do.....	Jan. 9-Mar. 26.....	28.....	.....	
Ceylon:				
Colombo.....	Nov. 21-Dec. 25.....	18.....	7.....	
Do.....	Dec. 26-Feb. 19.....	5.....	2.....	
Chile:				
Antofagasta.....	Mar. 21-27.....	1.....	.....	
Iquique.....	Feb. 13-19.....	2.....	.....	Epidemic with high mortality.
Coquimbo.....				

**CHOLERA, PLAGUE, SMALLPOX, TYPHUS FEVER, AND YELLOW FEVER—Continued.**
**Reports Received from Jan. 1 to May 13, 1921—Continued.**
**SMALLPOX—Continued.**

Place.	Date.	Cases.	Deaths.	Remarks.
China:				
Amoy	Nov. 7-Dec. 25		7	
Do.	Dec. 26-Mar. 25		10	
Antung	Dec. 20-25	1		
Do.	Jan. 10-Mar. 6	3	3	
Canton	Dec. 1-31			Present.
Do.	Jan. 1-Feb. 28			Do.
Chungking	Nov. 7-Dec. 25			Do.
Do.	Dec. 26-Mar. 12			Do.
Foochow	Nov. 7-Dec. 25			Do.
Do.	Dec. 26-Mar. 5			Do.
Hankow	Jan. 2-22	2	1	
Hongkong	Jan. 16-Feb. 19	11	6	
Manchuria Province—				
Dairen	Nov. 16-Dec. 20	12	3	
Do.	Dec. 28-Mar. 6	375	55	
Mukden	Dec. 12-18			Prevalent.
Do.	Jan. 16-Feb. 26			Present.
Nanking	Nov. 14-Dec. 18			Do.
Do.	Dec. 26-Mar. 9			Do.
Shanghai	Feb. 7-13	1		
Tientsin	Nov. 14-Dec. 4	2		
Do.	Dec. 25-Mar. 19	11		Dec. 12-25, 1920: Cases, 160; in camp for famine refugees.
Tsinanfu	Oct. 31-Nov. 12	20		In camp for famine refugees, 477.
Tsingtao	Jan. 3-Mar. 13	5	2	Statistics of Shantung Christian Hospital.
Chosen (Korea):				
Chemulpo	Dec. 1-31	1		
Fusan	Nov. 1-3	1		
Do.	Jan. 1-31	4	1	
Gensan	Dec. 1-31	15	12	
Do.	Jan. 1-31	24	8	
Colombia:				
Barranquilla	Jan. 16-Mar. 12			Present.
Santa Marta	Dec. 5-25			Do.
Do.	Dec. 20-Apr. 10			Do.
Cuba:				
Antilla	Dec. 7-27	10		For port of Preston.
Do.	Jan. 2-Apr. 16	89		Do.
Camaguey Province				Reported seriously prevalent during January, 1921. Mar. 17, 1921: 385 cases reported.
Cienfuegos	Mar. 13-Apr. 2	3		
Habana	Dec. 31-Feb. 16	11		1 from Jatibonico, Cuba; 1 from Jamaica.
Lugareno	Mar. 7-13	2		Vicinity of Nuevitas. Dec. 6-12, 1920: 1 case.
Matanzas	Jan. 2-29	6		
Nuevitas	Dec. 6-19	2		
Do.	Jan. 3-Apr. 17	41		
Oriente Province				Mar. 17, 1921: 391 cases reported.
Santiago	Nov. 20-Dec. 10	26		
Do.	Feb. 1-Apr. 10	351	1	“Alastrim” reported present. Estimated, Mar. 1-20, 1921: Cases, 1,000.
Czechoslovakia				July 11-Aug. 14, 1920: Cases, 141; deaths, 29.
Danzig	Dec. 5-18	2		Nov. 15-Dec. 25, 1920: Cases, 9; occurring in 4 localities.
Dominican Republic				
Santo Domingo	Jan. 9-Feb. 19	13	1	
Ecuador:				
Guayaquil	Nov. 16-Dec. 31	33	2	
Do.	Jan. 1-Mar. 31	72		
Egypt:				
Alexandria	Dec. 17-31	3	1	
Do.	Jan. 1-Mar. 11	10	2	
Cairo	Oct. 1-Dec. 9	3		
Do.	Jan. 8-14	1		
Port Said	Nov. 19-Dec. 31	1	1	
Do.	Jan. 8-14		1	
France:				
Paris	Nov. 1-30	2	1	
Do.	Jan. 1-31	7	1	
Rouen	Nov. 21-Dec. 31	7	2	
Do.	Feb. 13-Mar. 19	4	1	
St. Etienne	Dec. 3-15	2	1	
Do.	Jan. 23-Feb. 12	3		
Germany				Aug. 29-Nov. 6, 1920: Cases, 40.

## CHOLERA, PLAGUE, SMALLPOX, TYPHUS FEVER, AND YELLOW FEVER—Continued.

## Reports Received from Jan. 1 to May 13, 1921—Continued.

## SMALLPOX—Continued.

Place.	Date.	Cases.	Deaths.	Remarks.
Great Britain:				
Glasgow	Dec. 25	11	2	
Do.	Jan. 2-Mar. 19	23	8	
Liverpool	Jan. 30-Feb. 5	1		
London	Dec. 26-Jan. 1	1		
Greece:				
Patras	Apr. 4-10		1	
Saloniki	Nov. 15-Dec. 26	39	14	
Do.	Dec. 27-Apr. 3	49	20	
Haiti:				
Cape Haitien	Feb. 13-Apr. 16	75		
Port au Prince	Sept. 22-Dec. 2	486	2	In 8 interior towns, 20 cases. In one locality, 18 cases. In country districts, vicinity of Port au Prince, cases numerous. From date of outbreak to Feb. 11, 1921: Cases, 2,874; deaths, 221.
Honduras:				
Ceiba	Feb. 13-Mar. 5	4		
India:				
Bombay	Nov. 7-Dec. 25	11	3	Sept. 26-Oct. 9, 1920: Deaths, 250. Oct. 31-Dec. 11, 1920:
Do.	Dec. 26-Mar. 12	239	75	Deaths, 3,902. Dec. 19-25, 1920: Deaths, 353. Dec. 26, 1920-Jan. 22, 1921: Deaths, 1,741.
Calcutta	Dec. 5-11	2	2	
Do.	Jan. 2-Mar. 12	18	11	
Karachi	Jan. 16-Mar. 25	46	2	
Madras	Nov. 14-Dec. 18	7	5	
Do.	Dec. 26-Mar. 29	89	18	
Rangoon	Nov. 21-Dec. 25	5	1	
Do.	Jan. 2-Mar. 12	22	1	
Indo-China:				July 1-21, 1920: Cases, 107; deaths, 21.
Saigon	Mar. 13-20	1		
Italy:				
Catania	Nov. 29-Dec. 5	1		In Province, Nov. 29-Dec. 26, 1920: Cases, 43. Jan. 3-10, 1921: Cases, 32. Jan. 17-Apr. 10, 1921: Cases, 89.
Do.	Feb. 14-Mar. 12	11		Dec. 5, 1920-Jan. 2, 1921: Cases, 15.
Genoa	Feb. 7-13	3		
Messina (city and Province)	Jan. 3-Apr. 27	58	11	
Palermo	Oct. 30-Dec. 27	410	121	
Do.	Jan. 26-Apr. 5	280	38	
Japan:				
Kobe	Mar. 16-Apr. 10	5	1	
Nagasaki	Mar. 27-Apr. 10	3	2	
Java:				
West Java				
Bandoeng	Nov. 19-25	1	1	Nov. 12-Dec. 29, 1920: Cases, 72; deaths, 6. Jan. 6-12, 1921: One case, 1 death.
Do.	Feb. 3-9	1	1	
Batavia	Nov. 12-Dec. 25	14	5	
Do.	Jan. 27-Mar. 2	8	2	
Buitenzorg	Feb. 10-23	12	2	
Garret	Jan. 27-Mar. 2	2		
Indramayce	Nov. 12-Dec. 29	1		
Krawang	Do.	1		
Lebak	Jan. 13-Feb. 23	29	7	
Pandeglang	Jan. 13-Mar. 2	32	11	
Jugoslavia:				
Belgrade	Jan. 27-Mar. 2	16	3	
Zagreb	July 25-Aug. 28	128	42	Feb. 7-13, 1920, Cases, 122; deaths, 27.
Luxemburg	Feb. 27-Mar. 5	1		
Madagascar:				
Tananarive	Jan. 9-Mar. 5	4	1	
Madeira:				
Funchal	Jan. 17-23		2	
Do.	Dec. 5-18		2	
Mesopotamia:				
Bagdad	Dec. 26-Mar. 19		9	
Do.	Nov. 1-Dec. 31	2		
Mexico:				
Chihuahua	Jan. 1-31	1	2	
Do.	Dec. 6-26	11	3	
Ciudad Juarez	Dec. 27-Apr. 3		16	
Guadalajara	Mar. 21-27		1	
Do.	Dec. 1-31	1		
	Jan. 1-Mar. 31	3		

May 20, 1921.

## CHOLERA, PLAGUE, SMALLPOX, TYPHUS FEVER, AND YELLOW FEVER—Continued.

Reports Received from Jan. 1 to May 13, 1921—Continued.  
SMALLPOX—Continued.

Place.	Date.	Cases.	Deaths.	Remarks.
<b>Mexico—Continued.</b>				
Mexico City.....	Nov. 14-Dec. 25...	17	.....	Including municipalities in the Federal district.
Do.....	Jan. 2-Apr. 9.....	250	.....	Do.
Monterey.....	Mar. 29-Apr. 4.....	4	.....	
Salina Cruz.....	Jan. 1-Mar. 31.....	5	1	
Saltillo.....	Apr. 17-23.....	.....	7	
San Luis Potosi.....	Feb. 6-12.....	.....	1	
Tecate.....	Jan. 17.....	3	.....	
Torreón.....	Jan. 1-Feb. 28.....	6	3	
<b>Newfoundland:</b>				
Bonne Bay.....	Mar. 26-Apr. 1.....	1	.....	
Grand Falls.....	Mar. 12-18.....	1	.....	
Lewisport.....	Apr. 2-8.....	.....		
St. John's.....	Jan. 22-Apr. 22.....	3	.....	
<b>Norway:</b>				
<b>Panama:</b>				
Colon.....	Jan. 5-Apr. 5.....	108	.....	
<b>Poland:</b>				
Warsaw.....	Sept. 1-30.....	3	.....	Sept.-Oct., 1920: Cases, 175; deaths, 37.
<b>Portugal:</b>				
Lisbon.....	Nov. 28-Dec. 18.....	5	.....	
Do.....	Dec. 26-Mar. 26.....	17	.....	
<b>Portuguese East Africa:</b>				
Chal-Chal.....	Jan. 9-Feb. 12.....	.....		Present. One death reported.
Chinde.....	Jan. 2-8.....	.....		Present.
Gaza district.....	Dec. 18-23.....	.....		Do.
Inhambane district.....	Dec. 26-Jan. 8.....	.....		Do.
Lourenco Marques.....	Oct. 24-Dec. 11.....	10	.....	Reported present in interior of Chal-Chal district.
Quelimane.....	do.....	3	.....	
<b>Rumania:</b>				
Bessarabia Province.....	Jan. 1-27.....	202	.....	
Bucharest.....	Nov. 1-30.....	1	.....	
Cernowitz.....	Jan. 1-31.....	5	1	
Galatz.....	Dec. 1-31.....	1	.....	
Jassy.....	Nov. 1-Dec. 31.....	7	1	
Kisseneff.....	Jan. 1-Mar. 18.....	18	.....	
<b>Russia:</b>				
Estonia Province.....	Oct. 1-Nov. 30.....	28	.....	
Reval.....	.....	.....		Dec. 1-31, 1920: Cases, 17. Jan. 1-Feb. 28, 1921: Cases, 50, not including cases in military hospitals.
<b>Latvia:</b>				
Riga.....	Nov. 1-Dec. 31.....	17	.....	
Do.....	Feb. 1-28.....	21	.....	
<b>Siberia:</b>				
Vladivostok.....	Oct. 1-Dec. 31.....	3	1	
<b>Siam:</b>				
Bangkok.....	Feb. 13-19.....	1	.....	
<b>Sierra Leone:</b>				
Freetown.....	May 2.....	.....		Present.
<b>Spain:</b>				
Barcelona.....	Nov. 18-Dec. 29.....	13	.....	
Do.....	Jan. 13-Mar. 30.....	30	.....	
Corunna.....	Dec. 12-18.....	1	.....	
Madrid.....	Nov. 1-30.....	1	.....	Year ended Dec. 31, 1920:
Do.....	Feb. 6-13.....	1	.....	Deaths, 9.
Malaga.....	Oct. 1-Dec. 31.....	77	.....	
Do.....	Jan. 1-Mar. 31.....	48	.....	
Tarragona.....	Jan. 30-Feb. 19.....	2	.....	
Valencia.....	Dec. 5-25.....	3	.....	
Do.....	Dec. 26-Apr. 9.....	24	3	
<b>Switzerland:</b>				
Basel.....	Mar. 30-Apr. 2.....	5	.....	
<b>Syria:</b>				
Aleppo.....	Nov. 14-Dec. 4.....	.....		Dec. 12-25, 1920: Present.
Do.....	Jan. 16-Feb. 5.....	.....		Present.
<b>Tunis:</b>				
Tunis.....	Nov. 30-Dec. 28.....	10	18	
Do.....	Jan. 8-Apr. 8.....	57	39	
<b>Turkey:</b>				
Constantinople.....	Nov. 21-Dec. 11.....	4	.....	
Do.....	Jan. 2-Mar. 26.....	27	1	
<b>Union of South Africa:</b>				
Cape Province.....	Jan. 23-Feb. 5.....	.....		Fresh outbreaks, Cape Province, Natal, Orange Free State, and Transvaal.
Natal.....	.....	.....		Outbreaks.
Durban district.....	Jan. 23-Feb. 5.....	.....		Feb. 13-19, 1921: Present in rural areas.
				Outbreak.

## CHOLERA, PLAGUE, SMALLPOX, TYPHUS FEVER, AND YELLOW FEVER—Continued.

## Reports Received from Jan. 1 to May 13, 1921—Continued.

## SMALLPOX—Continued.

Place.	Date.	Cases.	Deaths.	Remarks.
Union of South Africa—Con. Orange Free State.....	do.....			
Transvaal.....				Outbreaks, Feb. 13-19, 1921: Present in rural area.
Johannesburg.....	Oct. 1-3.....	1		Jan. 23-Feb. 5, 1921: Outbreak in 1 district.
Do.....	Feb. 13-19.....	2		From Portuguese East Africa.
Uruguay: Montevideo.....	Dec. 1-31.....	6	2	
Do.....	Jan. 1-31.....	6	1	
Venezuela: Puerto Cabello.....	Apr. 3-9.....		1	
On vessel: S. S. Alfonso XIII.....	Dec. 27.....	1		At Habana, Cuba, from ports in northern Spain.
S. S. Cadiz.....	Jan. 5.....	1		At Habana, Cuba, from Mediterranean ports.
U. S. S. Mississippi.....	Feb. 18-20.....	22		In Canal Zone.
S. S. Ohioan.....	Jan. 4.....	1		At San Pedro, Calif., from New York, via Balboa, Canal Zone.
S. S. Ventura.....	Jan. 18.....	1		At Sydney, Australia, from San Francisco, Calif., via Honolulu, and Pago Pago, Samoa.
S. S. _____.....	Mar. 27-Apr. 2.....	2	1	At quarantine, St. John, New Brunswick. From Europe.

## TYPHUS FEVER.

Algeria:				
Algiers.....	Jan. 1-Mar. 31.....	24	4	
Oran.....	Mar. 11-Apr. 10.....	73	20	
Bolivia:				
La Paz.....	Dec. 1-31.....	13	9	
Brazil:				
Ceara.....	Oct. 17-Dec. 26.....		3	
Do.....	Jan. 2-29.....		5	
Bulgaria:				
Sofia.....	Jan. 2-Mar. 20.....	11	1	
Chile:				
Arica.....	Feb. 16-Mar. 23.....	12	1	Among laborers arriving from the arid region by way of Iquique, Chile, Feb. 16, 1921.
Concepcion.....	Nov. 1-Dec. 27.....		23	
Do.....	Dec. 28-Feb. 26.....		14	Present in vicinity. Year 1920, in public hospital, 89 cases, 13 deaths.
Coquimbo.....	Dec. 1-7.....		1	
Valparaiso.....	Oct. 25-Nov. 27.....		13	
Do.....	Jan. 30-Mar. 19.....		14	
China:				
Manchuria Province—				
Harbin.....	Nov. 22-28.....	1		On Chinese Eastern Railway.
Do.....	Jan. 3-9.....	1		Do.
Manchuria Station.....	Nov. 22-28.....	2		
Do.....	Jan. 10-16.....	1		
Chosen (Korea):				
Chemulpo.....	Feb. 1-28.....	1	1	
Seoul.....	Dec. 1-31.....	1		
Do.....	Jan. 1-31.....	1		
Colombia:				
Barranquilla.....	Mar. 13-19.....		1	
Czechoslovakia:				
Prague.....	Feb. 1-21.....	2		July 11-Aug. 28, 1920: Cases, 138; deaths, 18. Reported present, Feb. 19, 1921.
Danzig.....	Dec. 20.....	1		In emigrant from Brest-Litovsk, with 2 weeks' stay at Warsaw.
Do.....	Jan. 16-Feb. 5.....	3	1	
Egypt:				
Alexandria.....	Nov. 19-Dec. 31.....	13	6	
Do.....	Jan. 1-Mar. 25.....	21	11	
Cairo.....	Oct. 1-Dec. 28.....	44	32	
Do.....	Jan. 1-Feb. 11.....	30	23	
Germany.....				Sept. 12-Dec. 25, 1920: Cases, 259, including 11 in a camp. Dec. 25, 1920-Jan. 8, 1921: Cases, 7.
Great Britain:				
Belfast.....	Dec. 5-25.....	13		
Do.....	Jan. 9-Mar. 19.....	8	1	
Dublin.....	Nov. 28-Dec. 18.....	4	3	
Do.....	Jan. 9-Apr. 2.....	12	2	

**CHOLERA, PLAGUE, SMALLPOX, TYPHUS FEVER, AND YELLOW FEVER—Continued.**
**Reports Received from Jan. 1 to May 13, 1921—Continued.**  
**TYPHUS FEVER—Continued.**

Place.	Date.	Cases.	Deaths.	Remarks.
Greece:				
Drama.	Nov. 22-28.	1		
Do.	Feb. 28-Mar. 6.	1		
Kavalla.	do.	2		
Patras.	Nov. 23-Dec. 5.		1	
Saloniki.	Oct. 23-Dec. 26.	34	9	
Do.	Jan. 10-Apr. 3.	738	47	Among refugees from Russia.
Serres.	Nov. 8-14.	1		Present among Caucasian refugees in vicinity. At other localities, Feb. 28-Mar. 13, 1921: Cases, 27; deaths, 2.
Guatemala.				
Guatemala City.	Mar. 1-12.		1	Feb. 1-Mar. 12, 1921: Present in highland departments.
Hungary:				
Budapest.	Nov. 8-Dec. 5.	2		Aug. 3-Dec. 5, 1920: Cases, 38.
Italy:				
Naples.	Feb. 23.	2		
Trieste.	Feb. 14.	30		Among emigrants intending to come to United States.
Japan:				
Nagasaki.	Nov. 15-Dec. 26.	10	1	
Do.	Dec. 27-Apr. 16.	31	7	
Jugoslavia:				
Belgrade.	July 25-Aug. 28.	27	5	Feb. 7-13, 1920: Cases, 84; deaths, 2. Dec. 12-23, 1920: Cases, 112, 114 remaining cases.
Meljumurju Province.	Jan. 9-Mar. 26.	5		51 remaining cases.
Do.	Jan. 2-8.	73		
Zagreb.	Feb. 13-19.	42		
Do.	Dec. 12-25.	27		
Malta.	Dec. 23-Feb. 21.	41	6	City and county.
Mesopotamia:				
Bagdad.	Nov. 1-30.	1	1	
Do.	Feb. 1-28.	1	1	
Mexico:				
Guadalajara.	Dec. 1-31.	11		
Do.	Jan. 1-Mar. 31.	11	5	
Mexico City.	Nov. 11-Dec. 25.	67		Including municipalities in the Federal district.
Do.	Dec. 26-Apr. 9.	209		Do.
Sar Luis Potosi.	Dec. 5-31.			Present.
Do.	Jan. 16-Apr. 23.			Present. Four deaths reported.
Netherlands:				
Rotterdam.	Jan. 23-29.	1		
Poland:				
District—				
Galicia.	Nov. 1-30.	1,192	286	Sept.-Oct., 1920: Cases, 3,845; deaths, 371. Nov. 1-30, 1920: Cases, 3,059; deaths, 350. Dec. 1-31, 1920: Cases, 4,644; deaths, 550. Jan. 1-31, 1921: Cases, 5,308; deaths, 597. Year 1920: Cases, 161,846.
Kielce.	do.	279	15	
Lodz.	do.	83	6	
Lublin.	do.	403	20	
Posen.	do.	17		
Silesia.	do.	6		
Warsaw.	do.	191	15	
Warsaw city.	Nov. 1-Dec. 16.	96	8	
District—				
Bialystok.	Jan. 1-31.	321	33	
Galicia.	do.	3,427	457	
Kielce.	do.	426	42	
Lodz.	do.	200	14	
Lublin.	do.	383	18	
Posen.	do.	13		
Silesia.	do.	1		
Warsaw.	do.	340	16	
Warsaw City.	do.	197	17	
Portugal:				
Oporto.	Nov. 28-Dec. 4.	1		
Do.	Dec. 26-Mar. 28.	5	2	
Rumania:				
Cities—				
Bucharest.	Nov. 1-Dec. 31.	9	1	
Do.	Jan. 1-31.	7		
Cahul district.	Feb. 1-28.	13		
Constanza.	Dec. 1-31.	9		
Provinces—				
Bessarabia.	Nov. 30, 1920: Cases, 101.			
Do.	Jan. 1-Feb. 27.	426		
Bukowina.	Jan. 29, 1921: Cases, 103.			
Transylvania.	Including Banat.			
Do.	Dec. 1-31.	81		
	Jan. 1-Feb. 14.	41		In the old Kingdom of Rumania on Dec. 31, 1920, 119 cases reported present.

**CHOLERA, PLAGUE, SMALLPOX, TYPHUS FEVER, AND YELLOW FEVER—Continued.****Reports Received from Jan. 1 to May 13, 1921—Continued.****TYPHUS FEVER—Continued.**

Place.	Date.	Cases.	Deaths.	Remarks.
Russia:				
Province—				
Estonia.....		·		Sept. 1-Dec. 31, 1920 Cases, 455.
Latvia—				Jan. 1-Feb. 28, 1921 Cases, 314.
Riga.....	Nov. 1-Dec. 31.....	185		
Do.....	Jan. 1-Feb. 23.....	394		
Lithuania.....				Feb. 19, 1921: Cases, 175; mortality, 5 to 6 per cent.
Ruthenia.....				Feb. 19, 1921: Occurrence of about 5 fatal cases daily. Mar. 5, 1921, 200 fatal cases previously unreported.
Ukraine.....				Feb. 19, 1921: Occurrence of about 5 fatal cases daily.
Siberia:				
Vladivostok.....	Jan. 1-31.....	1	6	Dec. 1-31, 1920: Cases, 11; deaths, 6.
Turkey:				
Constantinople.....	Nov. 21, Dec. 25.....	25	1	
Do.....	Jan. 2-Apr. 2.....	50		
Union of South Africa.....	Feb. 27-Mar. 12.....			Outbreaks reported in Cape Province and Transvaal.
Cape Province.....				Feb. 13-19, 1921: Outbreaks reported.
Cape Town.....	Dec. 20-26.....	16	5	
East London.....	Jan. 29-Feb. 12.....	5	3	
Port Elizabeth.....	Jan. 30-Feb. 5.....	1		
Natal.....	Feb. 13-19.....			Outbreak.
Orange Free State.....	Jan. 23-Feb. 5.....			Outbreaks.
Transvaal—				
Johannesburg.....	do.....	1		District.
On vessels:				
S. S. Presidente Wilson.....	Feb. 1-6.....	15		At New York. From Trieste, Italy, Jan. 15; Naples, Jan. 18; and Algiers, Jan. 22, 1921.
S. S. San Giusto.....	Feb. 10, Mar. 3.....	22		At New York. From Trieste, Jan. 23, and Naples, Jan. 26, 1921.

**YELLOW FEVER.**

Brazil:				
Pernambuco.....	Nov. 14-21.....	1	1	
Mexico:				
Orizaba.....	Dec. 5-18.....	2	1	
Papantla.....	do.....	8	2	
Do.....	Jan. 9-15.....		1	
Tampico.....	Dec. 12-18.....	1	1	
Tuxpam.....	Dec. 5-18.....	9	4	
Do.....	Dec. 26-Jan. 1.....	5	1	
Vera Cruz.....	Dec. 5-26.....	8	3	
Do.....	Dec. 26-Mar. 20.....	6	1	
Zamora.....	Dec. 12-18.....	1	1	Also called Gutierrez, State of Vera Cruz.
Peru:				
Department—				
Lambayeque.....				Outbreak reported Jan. 22, 1921.
Chiclayo.....	Feb. 1-28.....	18	6	
Eten.....	do.....	7	2	
Ferrenafe.....	Jan. 1-31.....	18	17	
Do.....	Feb. 1-28.....	44	19	
Lambayeque.....	Jan. 1-30.....	2	1	
Do.....	Feb. 1-28.....	4		
Monsefu.....	Feb. 16-28.....	2		
Libertad—				
Trujillo.....	Apr. 28.....			Present.
On vessel:				
S. S. Savoia.....	Jan. 11-15.....	4		At Habana, Cuba, from Vera Cruz, Mexico. Vessel arrived Habana, Jan. 10, 1921, with three cases sickness on board. Two cases confirmed. Two cases developed later on board; confirmed Jan. 15. Savoia left Vera Cruz Jan. 6, 1921.